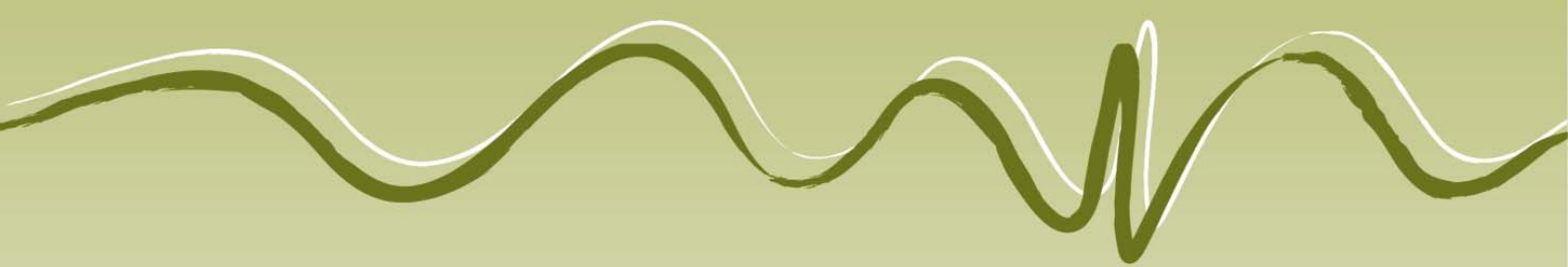


Environmental Impact Statement

Coffs Harbour Hospital Expansion



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Prepared for: NSW Health Infrastructure
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Glossary of terms and acronyms

Term	Description/ Definition
Annual average daily traffic (AADT)	The total traffic in both directions at a specified location calculated from mechanically obtained axle counts.
Australian height datum (AHD)	The standard reference level used to express the relative height of various features. A height given in metres AHD is essentially the height above sea level.
Aboriginal Heritage Information Management System (AHIMS)	This holds information about Aboriginal objects, Aboriginal Places with special significance with respect to Aboriginal culture, and archaeological reports.
Amenity	The degree of pleasantness of an area or place.
Archaeological site	A site with any material evidence of past Aboriginal activity that remains within a context or place that can be reliably related to that activity.
Acid Sulphate soils (ASS)	Naturally acid clays, mud and other sediments usually found in swamps and estuaries. They may become extremely acidic when drained and exposed to oxygen, and may produce acidic leachate and runoff that can pollute receiving waters and liberate toxins. ASS are classified as materials which are above the groundwater, are undergoing oxidation and have a pH of less than 4.0.
Borehole	A hole produced in the ground by drilling for the investigation and assessment of soil and rock profiles.
BC Act	NSW <i>Biodiversity Conservation Act 2016</i>
Catchment	The area drained by a stream or body of water, or the area of land from which water is collected.
CHH	Coffs Harbour Hospital
CHHC	Coffs Harbour Health Campus
Concept design	Initial functional layout of a concept, such as a building, to provide a level of understanding to later establish detailed design parameters.
Culvert	An enclosed channel for conveying a stream below a road.
CIV	Capital investment value
CPTED	Crime Prevention Through Environmental Design Principles
dBA	Decibels using the A-weighted scale. Decibels are used to measure sound levels. dBA measures loudness according to the human perception of sound.
OEH	Office of Environment and Heritage
Decibel	Decibels are used to measure sound levels.
Earthworks	The process of extracting, moving and depositing earth during construction.
Ecologically sustainable development (ESD)	Using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained and the total quality of life, now and in the future, can be increased. ESD incorporates four key principles: ■ the precautionary principle ■ inter-generational equity ■ conservation of biological diversity and ecological integrity ■ improved valuation and pricing of environmental resources.
Endangered ecological community (EEC)	An ecological community identified by relevant legislation as having endangered status.



Term	Description/ Definition
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>
Flood immunity	Relates to the level at which a particular structure would be clear of a certain flood event. A project objective is to provide flood immunity on at least one carriageway between 1% AEP (target) and 20% AEP (absolute minimum).
Geological unit	A volume of rock of identifiable origin and age range that is readily mapped, such as a series of inter-bedded sandstone and claystone beds or a body of granite.
Geotechnical	Application of the methods of engineering and science to construction that involves natural soil and rock materials.
Grade/ gradient	Slope or steepness
Habitat	The place where an organism lives. Habitats are measurable and can be described by their flora and physical components.
HI	New South Wales Health Infrastructure
HLS	Helipad Landing Site
Intersection	A junction between roads where the connection is made at the same level (grade). Traffic on the connecting road has to wait for a gap in the through road to join or cross that road.
LALC	Local Aboriginal Land Council
LEP	Local Environmental Plan
LGA	Local Government Area
Longitudinal section or 'long section'	The section drawn along the length of the route showing vertical elevation.
Project area	The site and surrounding land that is potentially affected by the project.
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SSD	State Significant Development
The project	Coffs Harbour Hospital Expansion involving the construction of a new Clinical Services Building and refurbishment of existing hospital.
Threatened species	Animals or plants listed as endangered or vulnerable under the NSW <i>Biodiversity Conservation Act 2016</i> or the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> .



Statement of Validity

Submission of Environmental Assessment (Environmental Impact Statement)

Prepared under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act)

Environmental Impact Statement prepared by

Name Simon Waterworth
Qualifications Burp, MBA, Registered Planner
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COFFS HARBOUR NSW 2450

In respect of

Applicant & Land Details

Proponent Health Infrastructure
Subject Site Coffs Harbour Health Campus
Land to be developed
Lot & DP Lot 205 DP 1206854 and Lot 14 DP 261222 located on the Pacific Highway, Coffs Harbour
Project Summary Construction of a new hospital building and refurbishment of existing building

Environmental Assessment

Environmental Impact Statement (EIS) pursuant to Part 4 of the EP&A Act

Declaration

I certify that I have prepared the contents of the EIS in accordance with the requirements of the *Environmental Planning and Assessment Act 1979* and Regulation and that, to the best of my knowledge, the information contained in this report is not false or misleading.



Signature
Name SIMON WATERWORTH

Date 18 June 2018



Executive Summary

The Proposal

The Proposal involves the expansion of the Coffs Harbour Hospital. The Proposal is summarised as follows:

- Construct new Clinical Services Building comprising new Main Entry/ Front of House, Perioperative Suite, Administration Space, Acute Surgical IPU, Intensive Care Unit (ICU), Maternity, Special Care Nursery (SCN), Labour Delivery Suites/ Birthing, Paediatrics, Extended Short Stay Unit, Inpatients Beds and a new rooftop helipad
- Associated roadworks between the roundabout and the loading dock area and the new hammerhead road on the east side of the expansion, including earthworks, pavement works, kerbs and gutter and pathways
- Construction of relocated carparking spaces (to be located within the existing on-ground Helipad Landing Site (HLS) and car park extension immediately east of main hospital building)
- Associated infrastructure and service works, including installation of underground and aboveground services required for the operation of the Coffs Harbour Hospital Expansion
- Refurbishment of the existing hospital building 'Main Building A' and areas to realign services roles, including Emergency Department, CSSD, Mortuary, Kitchen, Cath Lab, Medical IPU, Rehab and Stroke, GEM and Psychogeriatric, Ambulatory Community and Allied Health, Renal Dialysis, Perioperative Services, Cardiac Care Services, On Call and Administration Space.

It is to be assessed and determined by the Department of Planning and Environment as State Significant Development under Part 4 Division 4.1 of the *Environmental Planning and Assessment Act* (EP&A Act).

Purpose of Report

This Environmental Impact Statement (EIS) has been prepared for New South Wales Health Infrastructure (HI) to be lodged as part of a State Significant Development (SSD) Application. The EIS describes the Proposal in detail, assesses all potential impacts of the Proposal and how the works relate to the local, State and federal statutory environmental assessment framework. The report also sets out the commitments made by HI to manage and minimise potential impacts arising from the development.

The Site

The Coffs Harbour Hospital sits within the Coffs Harbour Health Campus which is located on land described as Lot 205 DP 1206854 and Lot 14 DP261222. The address of the site is 345 Pacific Highway, Coffs Harbour. The site is located on a block that has frontages to the Pacific Highway and Stadium Drive.

Planning Approval Pathway

The Proposal is declared State significant under Clause 8 of the *State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP)*.

Clause 8 of SRD SEPP states that development is declared to be SSD for the purposes of the EP&A Act if:

- The development is not permissible without development consent under Part 4 of the EP&A Act
- The development is specified in Schedule 1 or 2.



The development is an expansion of existing health services, exceeds 12 m in height and is located closer than five metres to a property boundary. Therefore, the development would not be permissible without development consent under Part 4 of the EP&A Act.

Clause 14 of Schedule 1 of the SRD SEPP states that:

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

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

The Proposal has an estimated capital investment value (CIV) of well over \$30 million (at \$120 million) and is therefore classified as SSD requiring the preparation of an EIS.

Conclusion

The Proposal will result in a much-needed improvement to facilities for the residents of the Coffs Coast and employees of the Coffs Harbour Hospital. The project will therefore benefit staff, stakeholders and the wider community. The potential impacts of the development are assessed as minor and can be managed by implementation of mitigation measures and consent conditions. Given the community benefit and planning merits of the Proposal, the Proposal warrants approval by the Minister of Planning and Environment or delegate.



1. Introduction

1.1 Preliminary

GeoLINK has been engaged by HI to prepare an EIS and lodge a SSD Application under Part 4 Division 4.1 of the EP&A Act for the Coffs Harbour Hospital (CHH) expansion.

The SSD Application seeks development consent for:

- Earthworks and associated excavation for site preparation
- Construction of:
 - New Clinical Services Building comprising new Main Entry/ Front of House, Perioperative Suite, Administration Space, Acute Surgical IPU, Intensive Care Unit (ICU), Maternity, Special Care Nursery (SCN), Labour Delivery Suites/ Birthing, Paediatrics, Extended Short Stay Unit, Inpatients Beds and a new rooftop helipad
 - Refurbishment of the existing hospital building and areas to realign services roles
- Roadworks, access and transport facilities
- Relocated carparking
- Infrastructure and service works/ adjustments
- Landscaping works.

The development is declared SSD under Clause 8 of the State and Regional Development SEPP as it includes a hospital with a CIV of over \$30 million and is development that is permitted with consent. As such an EIS is required to assess the environmental impact of the Proposal.

The Secretary of the Department of Planning and Environment has issued the Environmental Assessment Requirements (SEARs) under Section 4.12 (8) of the EP&A Act and Schedule 2 of the Environmental Planning and Assessment Regulation 2000 (EPAR 2000) for the EIS.

The purpose of the EIS is to address the SEARs described in the Proposal, documenting all potential impacts of the Proposal on the environment, and detailing protective measures to be implemented to reduce environmental impacts.

1.2 Need for the Project

The CHH was built in 2001 and capacity is insufficient to meet the current and projected population and demographic needs. The Mid North Coast has seen some of the fastest rates of population growth and ageing in NSW over the past 15 years. This has significantly increased the demand for acute, sub-acute and ambulatory health services. The ageing population contributes to high rates of chronic diseases including diabetes, chronic obstructive pulmonary disease, coronary heart disease and end stage kidney disease. The region also has high levels of socio-economic disadvantage and a significant Indigenous population and recent refugee arrivals. This contributes to higher than average levels of health problems and demand for services. The shortfall in capacity is most apparent in the following areas:

- Access block caused by insufficient medical beds and overflow into surgical beds
- Operating theatres at capacity resulting in public cases being undertaken at Port Macquarie Base Hospital or at local private facilities

- Insufficient ICU/ HDU beds
- Inability to maintain Emergency Treatment and Elective Surgery Performance targets
- Renal dialysis services at capacity across district
- Increasing burden of chronic disease, complex patients and patients requiring palliative care
- Space to deliver ambulatory services including outpatient clinics, therapies and procedures for non-inpatients.

Workforce issues also require consideration for the Hospital. The establishment of a sustainable Medical Workforce Model for specialist services is required to service smaller sites with outreach for select services. Staff specialist positions in key specialities are required to enhance medical governance and contribute to the training of junior staff. There is also an inability to attract key specialist clinical staff, nursing and allied health professionals. There are specific infrastructure issues integrated into the existing campus which inhibit the ability to deliver contemporary models of care. In particular these include:

- Unusually large medical and surgical wards which result in an ad hoc mix of patients and inhibit the ability to provide specialised services
- The distance of the maternity birthing suites from the operating theatres
- The fragmentation of coronary care services on-site
- The lack of single beds in inpatient units
- Inpatient units unsuited to the care of elderly and confused patients
- Overall travel times for staff and patients due to the long low-level design of the campus
- Lack of space to review patients in pre-admission clinic and in the perioperative unit generally
- Location and capacity of the Transit Lounge.

1.3 Project/ Design Objectives

The Proposal has been designed around the following design objectives:

- Service access and patient flows are improved
- Service integration especially from home to ambulatory to acute care optimised
- Self-sufficiency of acute medical and surgical care for the catchment area
- Service capacity increased to meet future demand
- Better health value benefits identified, developed and achieved
- Future proofing to enable changes to operational practice.

1.4 Analysis of Alternatives

1.4.1 Service Provision

Three service provision options were considered in the Business Case prepared for the delivery of the CHH expansion project. An options development process, in accordance with the NSW Health Process of Facility Planning, was undertaken as part of the Business Case which considered a long and short list of options. A value management exercise was undertaken which critically evaluated the options. Key stakeholders had input into and informed the outcome of this process. The options considered in detail by the Business Case were:

- A base case (Option 1) in which capital investment occurs only to keep CHHC safe and operational, with minimal changes to the services outside of locally funded initiatives (LFIs). Total investment in this option is estimated at \$16.5 million.

- 
- Option 2 (CHHC CSP Option) which represents the full suite of services capacity requirements identified in the CHHC CSP. The services identified includes additional capacity across overnight beds including a new Geriatric Evaluation Unit (GEM), same day beds, a completely new ED, and non-admitted services. It has a budget requirement outside of the funding envelope allocated for the project, with capital investment of \$186 million.
 - Option 3 (Preferred Option) which seeks to identify the services for prioritisation within the budget constraints and represents an affordable option. This option is built on the services identified as priorities for the Coffs Harbour Hospital Expansion with the exception of renal dialysis chairs, chemotherapy chairs, and an ED refurbishment instead of new build. Option 3 meets the CHHC CSP identified needs through a combination of new buildings, refurbishments of existing services, maximising efficiency and utilisation of available operating theatres, development of new surgical models of care, and operational changes within the funding envelope. It represents a cost-effective scope of services with some comprises that is able to meet future population and staff needs with a capital investment of \$156 million.

Based on service prioritisation, and cost benefit analysis, this business case recommended Option 3 as the preferred project option. While Option 3 does not meet the full suite of services under the CHHC CSP, it represents the best value for money as it includes a combination of new facilities, refurbishment of existing areas, and alternative storage considerations to effectively and efficiently meet the future needs of patients and staff.

The new building works to accommodate the majority of Option 3 is essentially what is being proposed as part of this SSD application.

1.4.2 Master-planning and Analysis of Location and Design Options

The proposed location of the new hospital building was derived through a master planning process and associated options analysis. The master planning process was undertaken in consultation with key stakeholders including Local Government, and HI to identify the preferred zone for the expansion. The master planning process involved two workshops, and was undertaken in line with the Utilisation of the NSW Health Wayfinding for Healthcare Facilities Guideline (GL2014_018).

Four masterplan options (refer to **Plates 1.1 to 1.4** below) were developed and evaluated against a set of evaluation criteria defined in the master planning process. The evaluation criteria included:

- **Value for money** - effectively utilises existing infrastructure assets through the effective use of blocking and stacking.
- **Identity and access** - maintains/ enhances identity in the community – welcoming and accessible to all users across entrances, way-finding and overall image.
- **Business continuity** - maintenance of service during construction by decanting and temporary accommodation, staging.
- **Flexibility and future proofing** - adaptable short-term and long-term, has is consistent with zonal plan, and provides opportunity for vertical and horizontal expansion.
- **Site utilisation** - promotes a highest and best use strategy across height and density.
- **Clinical** - delivers the clinical service priorities to 2026 and beyond.
- **Function** - is clinically functional and efficient to deliver health services considering clinical adjacencies, travel distances, patient movements, and operational efficiencies.

The masterplan options were scored against the above criteria. The resulting scores identified the preferred masterplan options.

The master planning process proposed that the new clinical services building be located in the Central Zone due to a range of benefits, including integration with the existing main hospital building. The preferred development site selected is to the north (derived from a combination of Masterplan Options 3 and 4, locating the proposed new Clinical Services Building in a more central location adjacent the existing hospital building)) of the existing main hospital building; it provides a new civic presence from the Pacific Highway and good opportunity for long-term future developments. The preferred development site and building arrangement was further refined during the feasibility and schematic design stage.

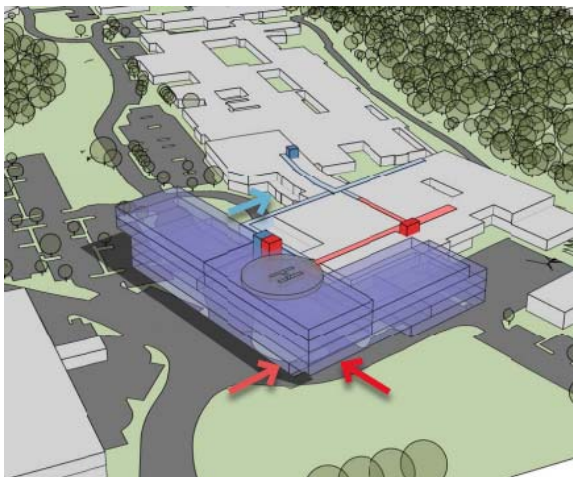


Plate 1-1 Masterplan Option 1

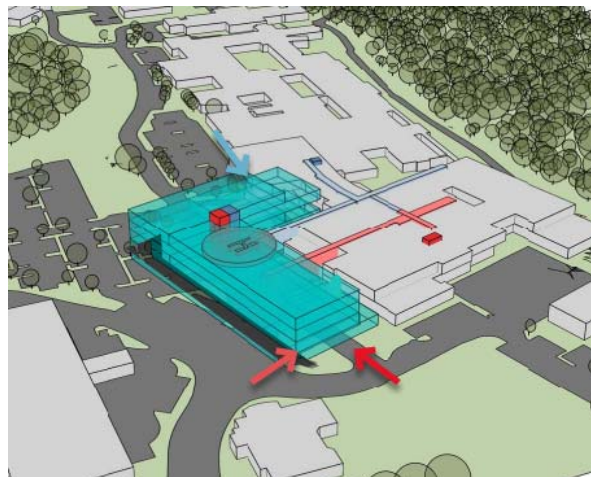


Plate 1-2 Masterplan Option 2

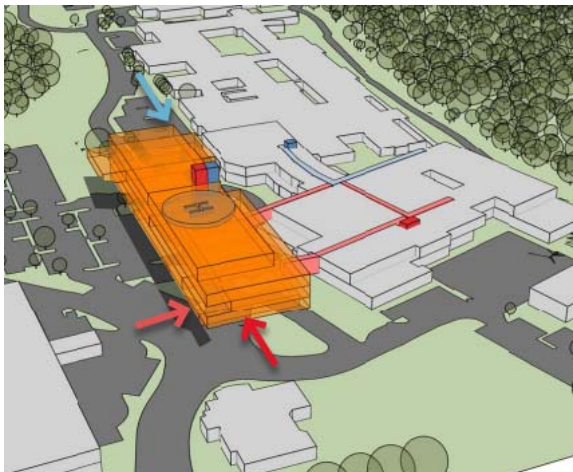


Plate 1-3 Masterplan Option 3

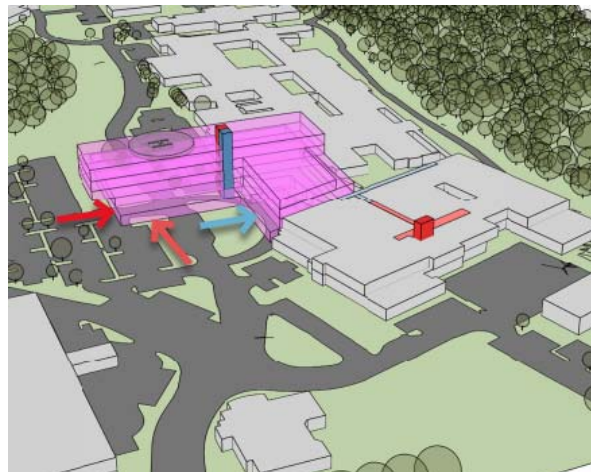


Plate 1-4 Masterplan Option 4

1.5 Planning and Environmental Approvals

1.5.1 Permissibility

The CHHC site is located within the Coffs Harbour City Local Government Area (LGA). Planning controls within this LGA are set out in the Coffs Harbour Local Environmental Plan (LEP) 2013. Under the provisions of LEP 2013 the site is zoned part SP2 Infrastructure (Health Services Facility), which contains the hospital and ancillary services, and E2 Environmental Conservation which contains the vegetated land in the south-west of the site and land adjacent to Newports Creek in the north of the site.



The CHHC is defined as a Health Services facility which means:

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.

Health Service facilities are permissible with consent in the SP2 Infrastructure (Health Services Facility) zone under the provisions of LEP 2013. Health Service facilities are also permissible with consent under Clause 57 (1) of State Environmental Planning Policy (Infrastructure) 2007 (ISEPP) which states that development for the purpose of Health Service Facilities may be carried out by any person with consent on land in a prescribed zone. The SP2 Infrastructure is a prescribed zone and development proposed is confined to the SP2 Infrastructure zone.

1.5.2 State Significant Development

Clause 8 of *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP) provides that development is declared to be SSD for the purposes of the EP&A Act if:

- The development is not permissible without development consent under Part 4 of the EP&A Act
- The development is specified in Schedule 1 or 2.

The development is not permissible without development consent under Part 4 of the EP&A Act (see permissibility section below) and the development is specified in Clause 14 of Schedule 1 of the SRD SEPP. Clause 14 of Schedule 1 of the SRD SEPP provides:

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

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

1.6 Purpose of this EIS

This EIS assesses the potential environmental impacts of expanding the CHH and has been prepared pursuant to the EP&A Act and EP&A Regulations (EPAR) including the SEARs (refer **Section 1.8** below).

1.7 Structure and Scope of EIS

Section 2 of this report identifies the subject site and its regional context, describes the physical characteristics and provides an analysis of the land. **Section 3** provides a detailed description of the Proposal. **Section 4** discusses community and stakeholder consultation that has and will be undertaken for the project. **Sections 5 and 6** outline the planning approval pathway for the Proposal

and provide an assessment of the Proposal as it relates to the statutory and non-statutory planning frameworks. The environmental assessment of the Proposal is contained in **Section 7**. An Environmental Risk Assessment is included in **Section 8**. Recommended environmental management and mitigation measures are contained in **Section 9**. **Section 10** contains a conclusion to the EIS and provides justification for the Proposal.

1.8 Secretary's Environmental Assessment Requirements

In accordance with Section 4.12(8) of the EP&A Act, the Secretary of the Department of Planning and Environment issued the requirements for the preparation of the EIS on 30 January April 2017. A copy of the SEARs is attached as **Appendix A**.

The SEARs require that the EIS must be prepared in accordance with, and meet the minimum requirements of Clauses 6 and 7 of Schedule 2 of the EPAR 2000 (the Regulation). The SEARs also include specific requirements that must be included in the EIS. **Table 1.1** provides a summary of the individual matters listed in the SEARs and identifies where these requirements are addressed in this EIS and the accompanying specialist studies.

Table 1-1 Summary of and Location of SEARs in the EIS

SEARs	Location	
	Report	Appendix
General Requirements		
An environmental risk assessment to identify the potential environmental impacts associated with the development	Section 8	n/a
The EIS must meet the minimum requirements of Clauses 6 and 7 of Schedule 2 of the EPAR 2000 (the Regulation)	Statement of Validity and Sections 1 - 9	n/a
Where relevant, the assessment of key issues below, and any other significant issues identified in the risk assessment, must include: ■ Adequate baseline data; ■ Consideration of the potential cumulative impacts due to other developments in the vicinity (completed, underway or proposed); and ■ Measures to avoid, minimise and if necessary, offset predicted impacts, including detailed contingency plans for managing any significant risks to the environment	Section 7.23 Section 8 Section 9	n/a
A report from a qualified Quantity Surveyor providing: ■ A detailed calculation of the CIV (as defined in Clause 3 of the Regulation) of the Proposal, including details of all assumptions and components from which the CIV calculation is derived. The report shall be prepared on company letterhead and indicate the applicable GST component of the CIV; ■ An estimate of jobs that will be created during the construction and operational phases of the proposed development; and ■ Certification that the information provided is accurate at the date of preparation	Section 3.9	Appendix D
A Statutory and Strategic Context	Sections 5 & 6	n/a
Policies	Sections 5 & 6	n/a
Built Form and Urban Design	Section 7.2	Appendix B

SEARs	Location	
General Requirements	Report	Appendix
Environmental Amenity	Section 7.3 and 7.20	Appendix B
Transport and Accessibility	Section 7.5	Appendix F
Ecologically Sustainable Development (ESD)	Section 7.6	n/a
Biodiversity	Section 7.1	n/a
Aboriginal Heritage	Section 7.7	Appendix H
Non-Aboriginal Heritage	Section 7.8	Appendix I
Noise and Vibration	Section 7.9	Appendix J
Sediment, erosion and dust control	Section 7.10	Appendix Q
Contamination	Section 7.10	Appendix K
Utilities	Section 7.11	Appendix N and O
Contributions	Section 5.6	n/a
Water Sources	7.14	Appendix U
Drainage and Stormwater	Section 7.14	Appendix Q and U
Flooding	Section 7.13	Appendix Q and T
Bushfire	Section 7.12	Appendix S
Waste	Section 7.15	Appendix Y
Construction hours	Section 3.8 and Section 7.9	Appendix J (Noise assessment)

Plans and Reports		
Architectural drawings (dimensioned and including RLs), Site Survey Plan, Site Analysis Plan, Shadow Diagrams, View Analysis/ Photomontages and schedule of materials and finishes	Section 3	Appendix B and C
Landscape Plan	Section 3	Appendix B
Stormwater Concept Plan	Section 7.14	Appendix Q
Soil and Water Management (Sedimentation and Erosion Control) Plan	Section 7.10.4 and 7.14	Appendix Q
Preliminary Construction Management Plan and a Preliminary Construction Traffic Management Plan	Sections 7.5 and 7.19	Appendix F and W
Geotechnical and Structural Report	Section 7.10.1 & 7.17	Appendix L & R
BCA and Accessibility Report	Section 7.16 and 7.18	Appendix V
Acid Sulphate Soils Management Plan (if required)	Section 7.10.2	Appendix M
Departure and approach procedures for helipads on the site	Section 7.22	Appendix X

1.9 The Proponent and Project Team

This EIS has been prepared for HI with the assistance of a comprehensive project team. The project team and their responsibilities are outlined in **Table 1.2** below.

Table 1-2 Project Team and Responsibilities

Name	Responsibility
Health Infrastructure	Project Director
PricewaterhouseCoopers	Project Manager
McConnel Smith & Johnson	Architects
GeoLINK	Town Planners, Ecologists and Bushfire Consultants
Bonacci Group	Site/ Civil and Structural Engineers, flooding
SECA	Traffic and Access
Coffey	Site contamination and geotechnical assessment
ARUP	Mechanical, Electrical and Noise Engineers
DSC	Hydraulic and Fire
Everick Heritage Consultants	Heritage
Cardno	Survey
Avipro	Aviation
BM+G	BCA and Access Consultants
APK	Cost Planning Consultants



2. The Site and Locality

2.1 Cadastral Description

The CHHC is located on land described as Lot 205 DP 1206854 and Lot 14 DP 261222. An aerial image of Lot 205 DP 1206854 and Lot 14 DP 261222 and the location of the expansion is shown on **Illustration 2.1**.

2.2 Site Context

The CHHC is located on the Pacific Highway approximately four kilometres from the centre of Coffs Harbour on the Mid North Coast of NSW. The main entrance to the CHHC is from the Pacific Highway with a secondary access from Stadium Drive. Other land uses in proximity to the CHHC include Newports Creek (which adjoins the Campus to the north), Coffs Coast Sport and Leisure Park (to the south), Coffs Harbour Education Campus (to the south-west), Isles Industrial Park (to the west) and the Coffs Harbour Industrial Park (to the north). A locality plan is shown as **Illustration 2.2**.

2.3 Hospital Background

The CHH forms part of the CHHC and was built in 2001 and is the major referral hospital for the Coffs Network of the Mid North Coast Local Health District (MNCLHD). It provides a broad range of specialist services to the residents of Coffs Harbour, Bellingen and Nambucca LGAs. It has 319 beds and provides the majority of specialist medical and surgical services for the Network.

2.4 Site Analysis

A site analysis plan has been prepared for the site as part of the architectural plans for the Proposal. The architectural plans are attached as **Appendix B**. A description of the site analysis is provided below.

2.4.1 Road Network, Access and Parking

The main entrance to the CHHC is from the Pacific Highway which a signalised intersection. There is a secondary access from Stadium Drive which is mainly utilised by staff or patients that require ongoing visitation/ treatment. Car parking has traditionally been located in the front (to the north) of the hospital. As a result of an identified shortfall of car parking a new carpark was constructed approximately three years ago to the south-east of the hospital which is mainly utilised by staff and volunteers, but is also available to the public. The construction of the new carpark has significantly improved on-site car parking availability.

2.4.2 Existing Buildings

The CHHC contains the CHH including general medicine, surgery, day surgery, planned and emergency theatre service, coronary care (including coronary angiography unit), intensive care, obstetrics, paediatrics, 24-hour Emergency Department, oncology, palliative care, rehabilitation, stroke, acute renal dialysis, high dependency and mental health and an extensive range of outpatient clinics. Allied health services, including occupational therapy, speech pathology, social work,



physiotherapy, dietetics, radiology, pathology, and pharmacy, are an integral part of the organisation and contribute to the high level of patient care at CHHC. The buildings within the campus range from one to two stories and are disbursed over the site. The outline of the existing buildings is shown in the development plans (refer **Appendix B**).

2.4.3 Existing Infrastructure

The site contains a significant amount of infrastructure including:

- Roads
- Carparking
- Sewerage mains
- Telecommunication mains
- Underground electricity mains and above ground electrical services
- Stormwater pipes and drains
- Water mains, gas, LPG and hydraulic services.

The location and extent of this infrastructure is shown on the Survey Plan (refer **Appendix C**).

2.4.4 Topography

The site of the CHHC is generally flat to sloping slightly to either Newports Creek to the north or the low-lying vegetated land to the south. The site has an elevation of less than 10 m AHD (Australian Height Datum).

2.4.5 Soil Landscape

The site is covered by the 1:250,000 Geological Map of Dorrigo – Coffs Harbour which indicates the site to be underlain by Quaternary aged alluvial, paludal and estuarine deposits, mainly comprising sands, silts and gravels. The Geology Map also indicates the site bedrock geology is Carboniferous aged Brooklana Formation which comprises siliceous argillite and slate. More specifically the 1:100,000 and 1:25,000 Coffs Harbour Area Coastal Quaternary Geology Map indicates the site to be underlain by the boundary of Holocene aged floodplain under the northern half and a Pleistocene aged terrace on the southern half both comprising of silt, clay, fluvial sand and gravel (Coffey 2017).

2.4.6 Vegetation

Vegetation within the proposed CHH expansion area comprises landscape plantings (e.g. Brush Box *Lophostemon confertus*, Broad-leaved Paperbark *Melaleuca quinquenervia*) and mown grassland. Two mature Turpentine (*Syncarpia glomulifera*) occur within or near the footprint (refer to site plan within **Appendix B**).

Vegetation to the north and south of the proposed expansion area comprises areas of dry, wet and swamp sclerophyll forest. Equivalent plant community types (PCT) in the NSW Vegetation Information System (VIS) are shown at **Table 2-1**.

Table 2-1 Vegetation Communities and PCTs

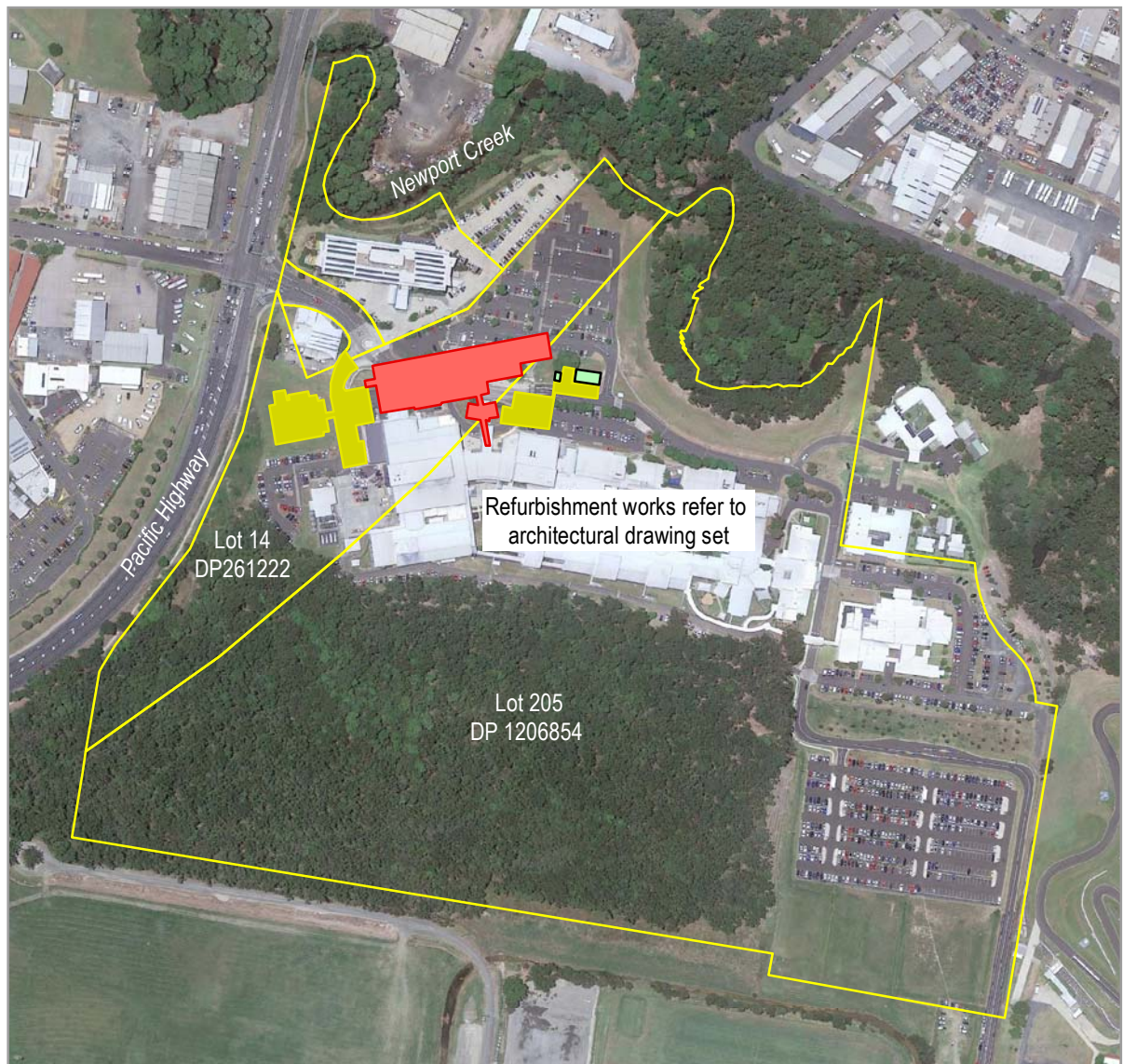
<i>Vegetation community</i>	<i>Equivalent PCT</i>
Coast and Escarpment Blackbutt Dry Forest (CH_DOF01)	<i>PCT 697 Blackbutt - Turpentine open forest of the foothills of the NSW North Coast Bioregion</i>
Coastal Swamp Mahogany Forest (CH_FrW02)	<i>PCT 1230 Swamp Mahogany swamp forest on coastal lowlands of the NSW North Coast Bioregion and northern Sydney Basin Bioregion</i>
Foothills to Escarpment Brush Box – Tallowwood – Blackbutt Wet Forest (CH_WSF05)	<i>PCT 752 Brush Box - Turpentine shrubby open forest of the coastal ranges of the NSW North Coast Bioregion</i>

2.4.7 General Land and Development Constraints

The site contains environmental and development constraints which include:

- Bushfire prone land
- Flood prone land
- Acid sulfate soils
- An isolated Endangered Ecological Community (EEC) (Swamp Sclerophyll Forest on Coastal Floodplains) which also is likely to contain threatened flora and fauna species is in proximity to the hospital
- Geotechnical constraints due to the low-lying nature of the site
- Proximity to an important natural watercourse.

These constraints have been considered in the design and assessment of the new building.



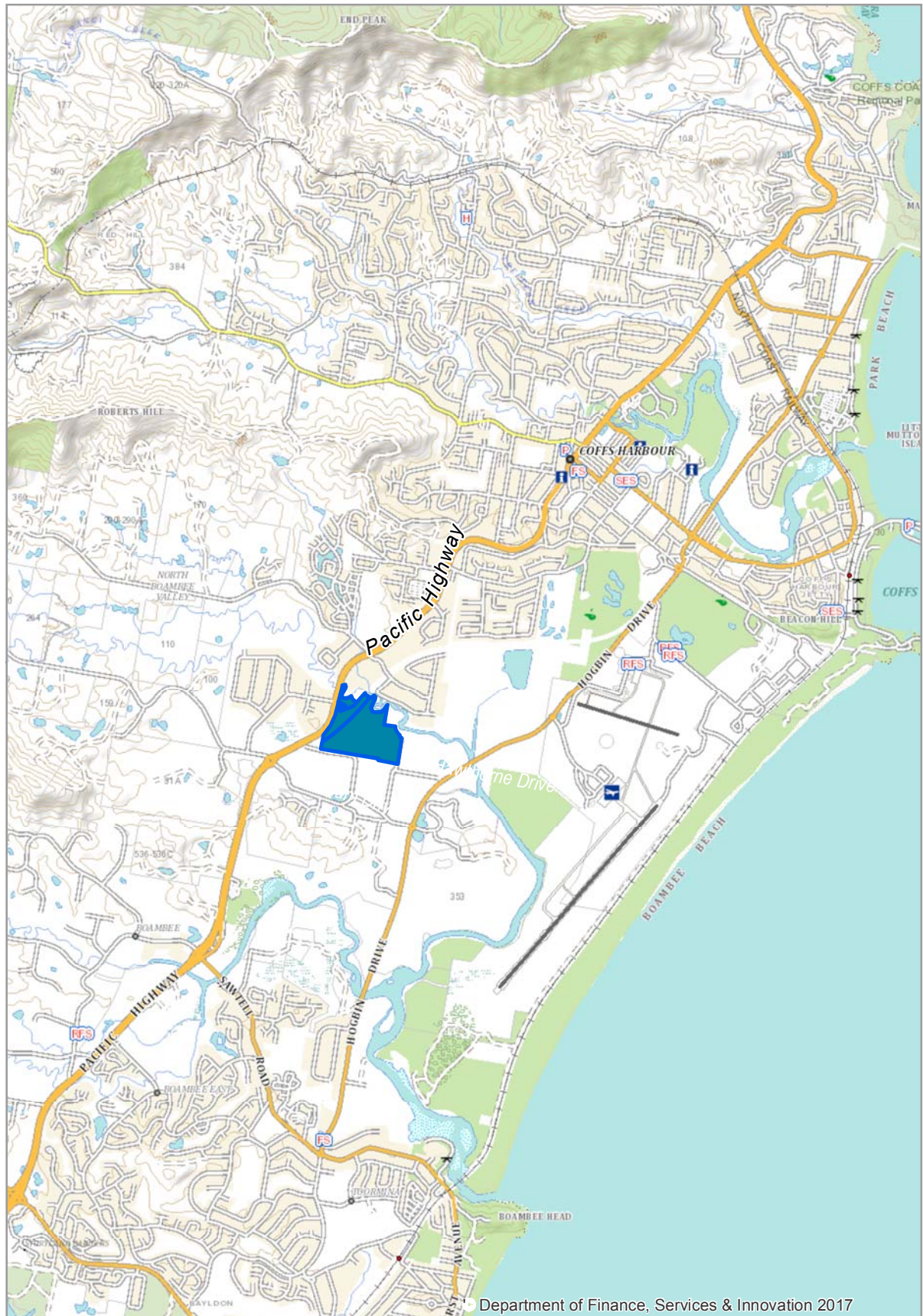
LEGEND

- Coffs Harbour Health Campus
- Extent of road works
- New build
- New sub station and generator



0 100

GeoLINK
environmental management and design



LEGEND

Coffs Harbour Health Campus



0 1,000

GeoLINK
environmental management and design



3. Description of the Proposal

3.1 Overview

This EIS has been prepared to accompany a SSD Application for the expansion of the CHH which will be assessed under Part 4 Division 4.7 of the EP&A Act. The project has been established based on a previously prepared supporting documentation including:

- Coffs Harbour Hospital Expansion Business Case
- Coffs Harbour Hospital Clinical Services Plan
- Coffs Harbour Hospital Expansion Masterplan, Concept and Schematic Designs.

Appendix B contains the architectural plans produced as part of the Schematic Design. The project involves construction of a new building and associated infrastructure to accommodate the expansion of the CHH, along with refurbishment of the existing main hospital building.

The Proposal is summarised as follows:

- Construct new Clinical Services Building comprising new Main Entry/ Front of House, Perioperative Suite, Administration Space, Acute Surgical IPU, Intensive Care Unit (ICU), Maternity, Special Care Nursery (SCN), Labour Delivery Suites/ Birthing, Paediatrics, Extended Short Stay Unit, Inpatients Beds and a new rooftop HLS (helipad)
- Associated internal access roadwork adjustments and tie-ins to existing access roads to accommodate the new Clinical Services Building, including earthworks, pavement works, kerbs and gutter and pathways
- Construction and relocation of carparking spaces (to be located within the existing on-ground HLS area and extending the existing car park adjacent to the existing main entrance)
- Associated infrastructure and service works
- Refurbishment of the existing hospital building 'Main Building A' and areas to realign services roles, including Emergency Department, CSSD, Mortuary, Kitchen, Cath Lab, Medical IPU, Rehab and Stroke, GEM and Psychogeriatric, Ambulatory Community and Allied Health, Renal Dialysis, Perioperative Services, Cardiac Care Services, On Call and Administration Space.

The new building works will involve the construction of a five-storey building, with lift overrun, that will:

- Have a relatively compact footprint
- Be of minimal impact to neighbouring land uses
- Have a narrow footprint, good access to natural light is achieved on all sides
- have a northern orientation to maximise solar access and views
- Provide for future expansion.

The project also includes earthworks, service/ infrastructure relocation and upgrades, new internal road and access arrangements, landscaping, tree removal, new signage and other associated works.

The proposed CHH expansion will increase the number of beds and treatment spaces from 319 to 440.

A set of architectural plans are attached as **Appendix B** and include:

- Site Analysis
- Site Plan
- Traffic Plan
- Possible Future Expansion Plans

- Shadow Diagrams
- Tree Removal Plan
- Elevations
- Sections
- Floor Plans
- Roof Plan
- Perspectives and photomontage
- Landscape Concept Plan
- Materials and finishes
- Signage and wayfinding plans.

The proposed new building within the CHHC will be located fronting the Pacific Highway. The location of the new building is shown in the Site Plan which is provided as part of **Appendix B**.

3.2 Description of New Clinical Services Building

3.2.1 Description of Levels

A description of each level is provided below.

- Ground Level - Front of House including public entry, main lobby, reception, café, public amenities, courtyards, public waiting area and an area for future expansion
- Level 1 - Operating Theatres, Surgical Inpatient Unit and Short Stay Unit
- Level 2 – Maternity Inpatient Unit, Special Care Nursing (SCN), Birthing and Paediatric Inpatient Unit
- Level 3 – Intensive Care Unit and Surgical Inpatient Unit
- Level 4 - Plant Area with helipad above.

3.2.2 Design, Address, Streetscape and Setback

The new building to accommodate the CHH expansion will be located in front of the existing hospital facing north. The proposed building will provide a new sense of address to the existing campus with an emphasis on a main entry being visible from the Pacific Highway entry road and roundabout. The building has been sited and suitably setback to provide clear, sight lines from the main entrance road and across the proposed new forecourt area. The open public space of the forecourt will provide a new civic presence to the campus and accommodate a bus stop with minimal travel distance to the new front of house as well as the existing Private Medical Centre.

3.2.3 Size, Massing and Form

The proposed new building, which will be five storeys high, with a lift overrun, on the northern main façade and includes the rooftop plant room, is 132 m long. The height to the top of the lift core which provides access to the carefully integrated helicopter pad is approximately 27.7 m. The length and height of the building has been modulated with the inclusion of a deep colonnade to provide weather protection along the ground floor as well as the provision of strongly expressed sun control on the upper floors. The proposed “bulk” of the building is further addressed on the north elevation above the colonnade by defining two “slipped” horizontal blocks, which make reference to the horizontal nature of the existing CHH.



In section the overall depth of the building at the core is 36.5 m. The mass on the southern side of the building is carefully articulated to reduce in form and scale. Also driven by the functional planning, the stepped arrangement of the Proposal allows warm winter sunlight to imbue the southern courtyards.

3.2.4 Public Space, Landscaping, Courtyards and Security

The proposed landscaped forecourt provides a new civic address, sense of place and pleasant arrival space to the north of the new development. The space will enhance the public movement between the Private Medical Centre, the proposed new bus stop which eliminates the need for the buses to move through the carpark and the front of house of the new hospital. Landscaped courtyards will link back to the existing hospital and provide a pleasant human scale to the space around the proposed centrally located cafeteria. Opening on to secure courtyards the cafeteria becomes a communal hub between the new and existing facility. It will visually activate the proposed link from the new front of house to the existing hospital's entry lobby. The overview of the courtyards, from the stepped southern elevation and the public cafeteria, helps to encourage CPTED (Crime Prevention Through Environmental Design) Principles.

3.2.5 Materials and Colours

The palette of materials selected for the new hospital, aim to reflect the sand dune location and forest timber character of Coffs Harbour. Rather than direct reference to the sea, the proposed materials embody ochre and grey hues of sand, sandstone, rock and natural timber. To address issues of maintenance, wear and tear and graffiti more robust materials have been selected around the base of the building. This will include light sandstone coloured brick work, sandstone cladding in select locations such as the reflection room near the front of house and vertical timber cladding (weather protected by the under-croft space) or wood composite expressing the curved forms that define the pedestrian flow and frame the flat planes of glazing at the entry lobby.

Light weight metal (perhaps porcelain or integral finish fibre cement) cladding material, in greys and whites, is proposed for the upper levels. Extruded aluminium will form the vertical and horizontal sun control projections on the northern façade. The proposed hospital roofs will generally be metal decking with five-degree falls. To enable views out from windows located adjacent to wide lower stepped forms, nominally flat concrete roofs will be detailed with minimal falls and waterproof membrane finish.

3.3 Earthworks

The generally flat topography of the campus means that earthworks will be limited to the construction footprint and surrounding area, services, landscaping etc. The ground floor level of the new Clinical Services Building will be approximately 300 mm above the existing hospital building ground floor level. A number of parameters were assessed when setting the ground floor level of the new Clinical Services Building including:

- The Probable Maximum Flood (PMF) level;
- Hospital operational requirements;
- Future ground floor expansion within the building footprint of the new Clinical Services Building;
- Existing hospital levels at ground floor and Level 1 for linkway connections; and
- Required floor to floor and ceiling height at ground floor of the new Clinical Services Building.



3.4 Access and Parking

3.4.1 Car parking

The new Clinical Services Building is to be partially sited on existing car parking which will mean the removal of approximately 118 car parks. These car parking spaces will be relocated within the CHHC by constructing a new on-ground western carpark on the site of the existing helipad and extending the existing carpark adjacent to the existing main entrance. In addition to this, approximately 460 car parks for the CHHC were constructed in 2015. A Transport and Accessibility Assessment (refer **Section 7.5**) has assessed that no additional car parking is required to be provided to accommodate the Proposal.

3.4.2 Bicycle Provision Staff and Public

The existing bicycle racks and storage is considered adequate based on the transport assessment undertaken. Showers are available for staff members choosing to walk or ride to work.

3.5 Signage

New signs will be installed as part of the project. This includes building identification and wayfinding signage for the hospital. The location and details of these signs are shown on the plans (refer **Appendix B**). These signs would be consistent with the purpose and needs of the hospital, including staff, patients and visitors.

3.6 Public Utility Adjustments

3.6.1 Water

The site is serviced by two 100 mm diameter incoming waters supplies connected to the Coffs Harbour Council's watermain located in the Pacific Highway. Potable water to the new building will be provided from the existing reticulated system. The existing system is located in-ground along the perimeter of the southern side of the new building. The system has been installed as a ring main with isolation valves throughout the main to enable the closure of sections of the main without disrupting the cold-water supply facility. Isolation valves will be installed within the existing piped system to enable the new works to proceed with little disruption to the operation of the hospital.

The renovation of the existing areas associated within the hospital can be supported by the existing site services. The new building will have new services that are supplied or connected directly from the existing internal mains which will generally support the facility; however, a new connection to the Coffs Harbour City Council watermain will be required to serve as a new incoming supply to the fire sprinkler system installed as part of the new building.

3.6.2 Sewer

The existing piped sewer reticulation system drains to a sewer pump station wet well located adjacent to the north-east corner of the existing building. The house service drainage has two main branches generally running parallel to the northern and southern elevations of the existing building. It is proposed the new multi-storey building will connect to the existing sewer drainage system, pumps and rising main. The refurbished areas will remain connected into the existing drainage system within the hospital site.



3.6.3 Gas

The site is fed from an on-site Liquefied Petroleum Gas (LPG) storage tanks. The service is reticulated in-ground along the southern side of the new building. The system has not been installed as a ring main. The new building will connect to the existing gas main via a new tee and valve. Augmentation to a section of the existing gas pipe will be required to supply the new building. The supply capabilities of the existing LPG tanks have been reviewed to assess their ability to support the new building and expansion of the existing hospital. Advice received indicates that an expansion of the LPG storage plant will be required to meet the new gas loads from the new Clinical Services Building.

To accommodate the increased gas loads it is proposed to install an additional two new 7.5kL bulk storage tanks, which will be connected to the existing LPG manifold in parallel with the existing LPG storage tanks; thereby creating greater on-site storage of approximately 45kL total volume and increasing the LPG supply capabilities to the site.

3.6.4 Electrical

A new Essential Energy kiosk substation will be required to support the proposed new building which will consist of one 1500kVA transformer. The new kiosk substation requires a 7000 x 4200 mm easement. To support this, Essential Energy in-ground cabling network and cabling infrastructure require augmentation.

All existing substations will be retained.

An Application for Connection has been submitted to Essential Energy and a Design Information Pack has been received allowing the augmentation of their network across the site to be designed.

3.6.5 Telecommunications

All existing communication services across the campus will be retained. A new lead-in cable will be provided and in-ground lead-in conduits will reticulate to a new campus distributor.

3.6.6 Stormwater

The proposed stormwater approach involves connecting into an existing underground pipe network which drains to Newports Creek. The water quality discharge measures for the proposed Clinical Services Building is designed to minimise water pollutant runoff to Newports Creek. The proposed location for the new building is over existing road and carpark. Currently the site of the proposed new building does not have any stormwater quality treatment measures. The proposed water quality discharge measures for the site are provided to reduce existing pollutant loads to Newports Creek. The water quality strategy for the New Clinical Services Building incorporates litter baskets in all inlet pits and a Puraceptor (SPEL) model P050 to treat stormwater runoff (potentially from a fuel/ oil spill) from the new helipad.

3.7 Project Milestones and Timeframe

The following table presents indicative key milestones and construction timeframes for the proposed CHH expansion.

Table 3-1 Indicative Key Milestones and Timeframes

Indicative Key Milestones and Timeframes	Date
New Clinical Services Building	
Construction commence	Q1 2019
Construction complete	Q4 2020
Go live	Q1 2021
Refurbishment of parts of the Existing Building	
Construction commence	Q2 2021
Construction complete	Q3 2021
Go live	Q4 2021

3.8 Construction Hours

Give the key milestones and construction timeframes, and the importance of the project's delivery, the following construction hours are proposed:

- Monday to Friday – 7.00 am to 6.00 pm
- Saturday – 7.00 am to 5.00 pm (extended)
- Sunday and public holidays – no work.

In addition to the above construction hours, approval is sought for the following works which may be undertaken outside the standard construction hours and may occur on a 24-hour-a-day, seven-days-of-the-week basis.

- Internal refurbishment of the existing hospital building
- External/ internal services work such as gas/ communications/ water/ hydraulics/ mechanical/ power/ medical gas, services shutdowns, services retrofitting and commissioning
- Staging to facilitate construction of external roads (i.e. switch overs or obstructive work) and other tasks such as line marking may need to occur at night
- Wide load deliveries
- Completion of major concrete pours (where necessary)
- Site clean-up.

3.9 Project Value and Job Creation

The estimated Capital Investment Value (CIV) for the project is \$120,199,470 excluding goods and services tax. A CIV assessment has been prepared by Altus Group and is attached as **Appendix D**.

Indicative construction jobs to be created during the construction of the Proposal will be approximately 290 construction jobs.

Operation of the expansion to the hospital will also generate additional jobs. The following table provides a summary of the projected job growth (full time equivalent - FTE) associated with the hospital once the expansion becomes operational.

Table 3-2 Projected CHHC Staffing Profile to 2026/27

	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27
FTE	866	866	866	866	998	1,033	1,072	1,105	1,137	1,198
Additional FTE per annum		-	-	-	132	35	40	33	32	61
Cumulative FTE		-	-	-	132	167	207	239	272	333

Source: MNCLHD (2017), Coffs Harbour Health Campus Financial Impact Statement, p 4



4. Stakeholder Consultation

4.1 Coffs Harbour City Council

4.1.1 Meeting with technical Staff

Members of the project team met with Coffs Harbour City Council on 24 October 2017 for initial discussion on the proposed CHH expansion project. Council representatives were:

- Tim Ruge – Design Engineer
- Gilbert Blackburn – Coordinator Development Assessment.

The main purpose of this meeting was to:

- Seek Council's feedback/ comments scope, design and discuss next steps
- Understand the proposed CHCC flood improvement works in the region affecting CHHC including timeframes.

There were also a number of informal contacts to Council from various specialist consultants in regard to stormwater matters sewer and water supply. These include:

- Donnelley Simpson Clearly Consulting Engineers on reticulated water supply and sewer
- Bonacci Group on Flooding and Stormwater
- AviPro consulted with Coffs Harbour Regional Airport Manager (a division of Coffs Harbour City Council)
- Coffs Harbour City Council has also provided extensive comments on the Proposal as part of the response to the SEARS. These comments have been addressed in the body of the EIS.

4.1.2 Meeting with Council's Senior Executive

A meeting was held with part of Council's Senior Executive on Tuesday, 3 May 2018 to provide an update on the project. In attendance from Council were:

- Ms Denise Knight - Mayor, Coffs Harbour City Council
- Mr Steve McGrath - General Manager, Coffs Harbour City Council
- Mr Ian Fitzgibbon - Group Leader Sustainable Places, Coffs Harbour City Council.

The main purpose of this meeting was to:

- Provide an overview of the project and planning approval pathway to Council Senior Staff and the Mayor
- Discuss any concerns that Council may have about the project
- Outline the timeframe for completion of the project
- Provide an overview of the next steps in the project.



4.2 NSW Office of Environment and Heritage

4.2.1 Flooding

The meeting with Coffs Harbour City Council on 24 October 2017 (referenced above in **Section 4.1**) was also attended by the NSW Office of Environment and Heritage (OEH). OEH's representative was Mr Martin Rose who provided specialist flood planning expertise to the meeting.

4.2.2 Biodiversity

The Proposal involved various correspondence with OEH's Land Management and Biodiversity Conservation Contact Service Centre to determine the likelihood of obtaining a waiver to the requirement of preparing a Biodiversity Development Assessment Report.

4.3 NSW Roads and Maritime Services

Consultation was undertaken with Roads and Maritime Services by SECA Solution regarding the proposed Coffs Harbour Bypass project to determine timeframes and likely changes to the local traffic environment around the hospital.

4.4 Essential Energy

An application for connection has been submitted to Essential Energy by ARUP and a Design Information Pack has been received allowing the augmentation of their network across the site to be designed.

4.5 NSW Ambulance and Hunter Northern Rivers Helicopter Rescue Service

AviPro consulted with the NSW Ambulance Service's Helicopter Retrieval Capability Manager about the services requirements for the proposed relocated helipad. Hunter Northern Rivers Helicopter Rescue Service was also consulted by AviPro.

4.6 Stakeholder Consultation

Given the significance and size of the project a Stakeholder and Communications Plan was developed for the project. It provides an overview of the objectives, governance, methodology, timeframes, accountabilities and other information relevant to identifying, delivering and monitoring stakeholder consultation and communications for the duration of the project.

There has also been an ongoing consultation process undertaken during the project. The initial focus was on providing input into determining the user requirements, Functional Design Brief and options evaluation. This process was informed through information gathered, investigated and verified by key stakeholders through a series of project planning team (PPT) meetings, value management workshop, and preliminary site due diligence. This process of stakeholder consultation has been ongoing throughout the project in line with the established governance protocols.



4.7 Community Consultation

4.7.1 Consultation with the Aboriginal Community

A site inspection and informal consultation was undertaken with Coffs Harbour and District Local Aboriginal Land Council (CHDLALC) senior Site Officer, Ian Brown, on 24 October 2017 as part of the due diligence Aboriginal heritage assessment. This is discussed further in **Section 7.7**.

4.7.2 Community notification

Media releases announcing the CHH expansion were issued in April and June 2017, firstly announcing the project and then confirming that project was included in the 2017/18 State Budget. There was also a recent media release where the CHH expansion schematic design was launched in May 2018 by the Premier.

4.7.3 Adjoining Property Owners

HI have also been in discussions with the owners of the adjoining Coffs Harbour Specialist Medical Centre regarding the Proposal and how it will impact on matters that could affect the centre including traffic, access and construction noise.

4.8 Ongoing or Future Consultation

4.8.1 General

The following measures will be adopted to ensure Council, stakeholders, adjoining property owners and the wider community are kept informed of the project's progress before and during construction:

- Prior to commencement of work, the proponent must notify in writing the Council and the occupier of any land within 40 m of the boundary of the site works. The notification should outline the project and the expected timing for commencement and completion of construction works.
- Complaints received prior to and during the undertaking of works shall be recorded and attended to promptly. On receiving a complaint, works shall be reviewed to determine whether issues relating to the complaint can be avoided or minimised. Feedback shall be provided to the complainant explaining what remedial actions were taken.
- The proponent shall develop a complaints management system and record details of all complaints received and the means of resolution of those complaints. The Complaints Register shall be made available to Council on request.
- A site notice board must be located at the entrance or other appropriate location on the site in a prominent position and must including the following:
 - 24-hour contact person for the site
 - Telephone, facsimile numbers and email addresses
 - Site activities and time frames

The site notice must be erected no less than two days prior to the commencement of works.



4.8.2 Noise

Carry out consultation with the community and surrounding building owners/ occupants during construction including, but not limited to notification of planned activities and expected disruption/ effects, construction noise complaints handling procedures. Of particular importance would be the Private Medical Centre, Ambulance Station, Shearwater Lodge and UNSW rural clinical school.

4.8.3 Aviation

AviPro will engage with the following additional organisations in finalising the location/ height etc. of the new helipad:

- CASA if regulatory change occurs that materially impacts the program
- Air Services Australia for airspace protection issues
- CHHC for operational procedures development.

4.8.4 Telecommunications

A preliminary enquiry is to be issued to NBN, Optus and Telstra in relation to their assets adjacent to the existing site to notify of the proposed connections.



5. Statutory Planning Framework

5.1 The Planning Approval Pathway

5.1.1 Permissibility

The CHHC site is located within the Coffs Harbour City LGA. Planning controls within this LGA are set out in the Coffs Harbour LEP 2013. Under the provisions of LEP 2013 the site is zoned part SP2 Infrastructure (Health Services Facility), which contains the hospital and ancillary services, and E2 Environmental Conservation which contains the vegetated land in the south-west of the site and land adjacent to Newports Creek in the north of the site. The site zoning is discussed further in Section 5 the Proposal will be located wholly within the SP2 Infrastructure.

The CHHC is defined as a Health Services Facility which means:

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.

The uses can then be further defined as follows:

*A **Hospital** which means a building or place used for the purpose of providing professional health care services (such as preventative or convalescent care, diagnosis, medical or surgical treatment, psychiatric care or care for people with disabilities, or counselling services provided by health care professionals) to people admitted as in-patients (whether or not out-patients are also cared for or treated there), and includes ancillary facilities for (or that consist of) any of the following:*

- a. day surgery, day procedures or health consulting rooms,
- b. accommodation for nurses or other health care workers,
- c. accommodation for persons receiving health care or for their visitors,
- d. shops, kiosks, restaurants or cafes or take away food and drink premises,
- e. patient transport facilities, including helipads, ambulance facilities and car parking,
- f. educational purposes or any other health-related use,
- g. research purposes (whether or not carried out by hospital staff or health care workers or for commercial purposes),
- h. chapels,
- i. hospices,
- j. mortuaries.

- *An **emergency services facility** means a building or place (including a helipad) used in connection with the provision of emergency services by an emergency services organisation.*

- A **medical centre** (GP Super Clinic) which means premises that are used for the purpose of providing health services (including preventative care, diagnosis, medical or surgical treatment, counselling or alternative therapies) to out-patients only, where such services are principally provided by health care professionals. It may include the ancillary provision of other health services.
- A **mortuary** means premises that are used, or intended to be used, for the receiving, preparation, embalming and storage of bodies of deceased persons pending their interment or cremation.

Health Services facilities are permissible with consent in the SP2 Infrastructure (Health Services Facility) zone under the provisions of LEP 2013. Health Service facilities are also permissible with consent under Clause 57 (1) of State Environmental Planning Policy (Infrastructure) 2007 (ISEPP) which states that development for the purpose of Health Service facilities may be carried out by any person with consent on land in a prescribed zone. The SP2 Infrastructure is a prescribed zone however the E2 Environmental Conservation zone is not.

Health Service facilities are permissible in the SP2 Infrastructure Zone but prohibited in the E2 Environmental Conservation zone under the provisions of LEP 2013.

5.1.2 State Significant Development

Clause 8 of SEPP (State and Regional Development) 2011 (SRD SEPP) states that development is declared to be State Significant Development (SSD) for the purposes of the EP&A Act if:

- The development is not permissible without development consent under Part 4 of the EP&A Act
- The development is specified in Schedule 1 or 2.

The Proposal would not meet the following requirements of Clause 58 of ISEPP:

- The alteration of, or addition to, a building that is a health services facility
- Development for the purposes of restoring or replacing accommodation or administration facilities
- Demolition of buildings carried out for the purposes of a health services facility
- Development for the purposes of a helipad that is a patient transport facility
- Development for the purposes of car parks to service patients or staff of, or visitors to, the health services facility (or to service staff of, or visitors to, other premises within the boundaries of the facility).

The Proposal exceeds 12 m in height and is located closer than five metres to a property boundary. Therefore, the development would not be permissible without development consent under Part 4 of the EP&A Act.

Clause 14 of Schedule 1 of the SRD SEPP states that:

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

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



The Proposal has an estimated capital investment value of just over \$120 million. The Proposal would therefore be classified as SSD and requires the Secretary of the Department of Planning and Environment to issue requirements for the preparation of the EIS in accordance with Section 4.12 (8) of the EP&A Act to Health Infrastructure.

5.2 Environmental Planning and Assessment Act 1979

The EP&A Act is the primary legislation for environmental planning in NSW. It establishes the legislative framework that governs land use, development assessment and decision making. The EP&A Act (1979) create the required administration and allocate roles and responsibilities for land use and assessments. This section summarises the relevant policies and plans that are called up and required to be addressed under Section 4.15 of the EP&A Act.

5.3 State Environmental Planning Policies

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

The aims of this policy are as follows:

- To amend the definitions of hazardous and offensive industries where used in environmental planning instruments.
- To render ineffective a provision of any environmental planning instrument that prohibits development for the purpose of a storage facility on the ground that the facility is hazardous or offensive if it is not a hazardous or offensive storage establishment as defined in this policy.
- To require development consent for hazardous or offensive development proposed to be carried out in the western division.
- To ensure that in determining whether a development is a hazardous or offensive industry, any measures proposed to be employed to reduce the impact of the development are taken into account.
- To ensure that in considering any application to carry out potentially hazardous or offensive development, the consent authority has sufficient information to assess whether the development is hazardous or offensive and to impose conditions to reduce or minimise any adverse impact.
- To require the advertising of applications to carry out any such development.

Potentially hazardous industry as defined in SEPP 33 *“means a development for the purposes of any industry which, if the development were to operate without employing any measures to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would pose a significant risk in relation to the locality:*

- a. to human health, life or property, or*
- b. to the biophysical environment,*

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



If a development is found to be potentially hazardous according to SEPP 33 screening, a Preliminary Hazard Analysis (PHA) is required in accordance with guidelines and circulars published by the NSW Department of Planning and Environment. The objectives of a PHA are to:

- Identify potential hazards associated with the proposed and existing facilities
- Determine likelihood of occurrence and consequences to people and the environment of identified hazards
- Assess the risk in terms of location and land use
- Recommend safeguards and mitigation measures if required to achieve an acceptable level of risk.

In accordance with SEPP 33 the hazardous substances and dangerous goods to be held or used on-site are required to be identified and classified in accordance with a risk screening method contained within the document entitled *Applying SEPP 33 Consultation Draft July 2008*. Hazardous materials are defined in this publication as substances falling within the classification of the Australian Code for Transportation of Dangerous Goods by Road and Rail (Dangerous Goods Code).

ARUP have provided a SEPP 33 assessment for the proposed Coffs Harbor Hospital Expansion. This advice and assessment is attached as **Appendix G**.

To accommodate the increased gas loads (LPG - Class 2.1) of the development it is proposed to install an additional two new 7.5kL bulk storage tanks, which will be connected to the existing LPG manifold in parallel with the existing LPG storage tanks; thereby creating greater on-site storage of approximately 45kL in total volume and increasing the LPG supply capabilities to the site. The following other dangerous goods are stored on-site:

- Liquid Oxygen (18000 L) – Class 2.2
- Nitrous oxide 9 'G' size cylinders (450 L water capacity) – Class 2.3
- Tool air 15 'G' size cylinders (750 L water capacity) – Class 2.2.

The layout of the existing storage areas and the expanded LPG tank farm is shown in the SEPP 33 report at **Appendix G**.

The quantities of LPG (total including existing), Nitrous Oxide and Liquid Oxygen exceed the SEPP 33 thresholds. None of the expected transportation frequencies as described in the SEPP 33 report exceed the screening thresholds under SEPP 33.

ARUP have prepared a PHA as part of the SEPP 33 report and considered risk classification and prioritisation, including a range of potential risks and possible impacts associated with the dangerous goods on-site.

In terms of controlling the risk a HAZOP study was performed to show the risks and associated safeguards related to the tank farm. The register can be found in Appendix A of the SEPP 33 report. Consequence modelling of LPG events (jet fire, vapour cloud explosions and BLEVEs) have been undertaken. An event tree for failure of the tanks has also been completed. These studies have shown that in the very unlikely event of a large jet fire becoming established in the eastern most tank (currently existing) that it is possible for direct flame impingement on the hospital main building. Consideration should be given to the installation of a fire wall FRR (240/240/240) on the eastern side of the LPG storage area to reduce risk so far as reasonably practicable.



The SEPP 33 report outlines requirements for the storage of dangerous goods as defined by Australian Standards and guidance materials. The review has demonstrated that the design complies with the requirements of the following Australian Standards:

- AS1596:2014 *The storage and handling of LP Gas*;
- AS 1894 1997 *The storage and handling of non-flammable cryogenic and refrigerated liquids*; and
- AS 4332-2004: *The storage and handling of gases in cylinders*.

5.3.2 State Environmental Planning Policy No. 44 – Koala Habitat

SEPP 44 aims to encourage the conservation and management of natural vegetation areas that provide habitat for Koalas, to ensure permanent free-living populations would be maintained over their present range. The *Coffs Harbour City Koala Plan of Management* addresses the requirements of SEPP 44 within the Coffs Harbour LGA. Primary Koala habitat occurs at the site. The Proposal would not result in the removal of any Koala habitat and hence no further assessment is deemed necessary.

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

The aim of this Policy is to improve the amenity of urban and natural settings by managing the impact of outdoor advertising and signage. The Proposal includes installation of a number of signs, including building identification and wayfinding signs. The location of these signs is provided in the plan package at **Appendix B**.

The signage proposed is to provide identification to the hospital and directional/ wayfinding signage. Clause 8 of SEPP 64 states that a consent authority must not grant development consent to an application to display signage unless the consent authority is satisfied that the signage:

- Is consistent with the objectives of this Policy as set out in the SEPP.
- Satisfies the assessment criteria specified in Schedule 1 of the SEPP.

The signage is to be installed to ensure that patients and visitors know where to go when they arrive at the hospital. This is essential for patient and visitor safety. The signage will be consistent with existing signage within the hospital campus and serves the purpose of the hospital. It is considered that the proposed signage will be consistent with the objectives of SEPP 64 and also the criteria outlined in Schedule 1 of the SEPP.

5.3.4 State Environmental Planning Policy (Coastal Management) 2018 (Coastal Management SEPP)

The Coastal Management SEPP aims to promote an integrated and co-ordinated approach to land use planning in the coastal zone in a manner consistent with the objects of the *Coastal Management Act 2016*, including the management objectives for each coastal management area, by:

- Managing development in the coastal zone and protecting the environmental assets of the coast
- Establishing a framework for land use planning to guide decision-making in the coastal zone
- Mapping the four coastal management areas that comprise the NSW coastal zone for the purpose of the definitions in the *Coastal Management Act 2016*.

The Coastal SEPP applies to the subject site. An assessment of the relevant development controls contained within the SEPP and how they relate to the Proposal is provided below.

Division 1 Coastal wetlands and littoral rainforests area

The subject site contains a mapped coastal wetland in the western part of the site which is identified on the “Coastal Wetlands and Littoral Rainforests Area Map” of the Coastal Management SEPP. This site was not previously mapped under the former SEPP 14 State Environmental Planning Policy No. 14 - Coastal Wetlands. The proposed footprint of the building and works do not impact on the newly mapped area (refer **Illustration 5.1**).

However, the footprint is within an area mapped as proximity area for coastal wetlands on the “Coastal Wetlands and Littoral Rainforests Area Map” (refer **Illustration 5.1**). Clause 11 (1) of the Coastal Management SEPP states that development consent must not be granted to development on land identified as “proximity area for coastal wetlands” or “proximity area for littoral rainforest” on the Coastal Wetlands and Littoral Rainforests Area Map unless the consent authority is satisfied that the proposed development will not significantly impact on:

- The biophysical, hydrological or ecological integrity of the adjacent coastal wetland or littoral rainforest
- The quantity and quality of surface and ground water flows to and from the adjacent coastal wetland or littoral rainforest.

Stormwater impacts are discussed in **Section 7.14**. It is not expected that the Proposal would have any impact on these coastal wetlands.

Division 2 Coastal vulnerability area

The site is not mapped as a “coastal vulnerability area”.

Division 3 Coastal environment area

Part of the site is mapped as a coastal environment area (refer **Illustration 5.2**). Clause 13 (1) and (2) of the Coastal Management SEPP states that development consent must not be granted to development on land that is within the coastal environment area unless the consent authority has considered whether the proposed development is likely to cause an adverse impact on certain matters. These matters and an assessment of the Proposal against them area outlined in **Table 5.1**.

Division 4 Coastal Use Area

Most of the site is mapped as a coastal use area (refer **Illustration 5.2**). Clause 14 (1) of the Coastal Management SEPP states that development consent must not be granted to development on land that is within the coastal use area unless the consent authority has considered whether the proposed development is likely to cause an adverse impact on certain matters. These matters and an assessment of the Proposal against them area outlined in **Table 5.1**.

Table 5-1 Coastal SEPP Matters for Consideration for Development

Sub Clause	Matters for Consideration	Comment
Division 3 Coastal environment area		
1(a)	The integrity and resilience of the biophysical, hydrological (surface and groundwater) and ecological environment,	An assessment of the impacts of the Proposal on water resources has been carried out (refer Section 7.14 and Appendix U). The Proposal will not have a significant impact on the integrity and resilience of the biophysical, hydrological (surface and groundwater) and ecological environment.



Sub Clause	Matters for Consideration	Comment
1(b)	The coastal environmental values and natural coastal processes,	The Proposal is within an existing hospital site and will be located on a highly disturbed area. It is not considered that it will have an impact on the coastal environmental values and natural coastal processes.
1(c)	The water quality of the marine estate (within the meaning of the Marine Estate Management Act 2014), in particular, the cumulative impacts of the proposed development on any of the sensitive coastal lakes,	The development will not impact on the Marine Estate or any Sensitive Coastal Lakes.
1(d)	Marine vegetation, native vegetation and fauna and their habitats, undeveloped headlands and rock platforms,	The Proposal will not impact on any marine vegetation, native vegetation and fauna and their habitats, undeveloped headlands or rock platforms.
1(e)	Existing public open space and safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability,	The Proposal will not impact on any public open space.
1(f)	Aboriginal cultural heritage, practices and places,	The Proposal is unlikely to impact on any Aboriginal cultural heritage, practices and places (refer Section 7.7).
1(g)	The use of the surf zone.	The Proposal will not impact on the use of the surf zone.

Division 4 Coastal Use Area

	existing, safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability,	The Proposal will not impact on any public access.
	overshadowing, wind funnelling and the loss of views from public places to foreshores,	The Proposal will have not increase overshadowing or wind funnelling or reduce views from public places to foreshores (Section 7.2)
	the visual amenity and scenic qualities of the coast, including coastal headlands,	The Proposal is not in proximity and therefore will not impact on the visual amenity of scenic qualities of the coast (refer Section 7.3).
	Aboriginal cultural heritage, practices and places,	The Proposal is unlikely to impact on any Aboriginal cultural heritage, practices and places (refer Section 7.7).
	Cultural and built environment heritage.	The Proposal is unlikely to impact on any cultural and built environment heritage, practices and places (refer Sections 7.2 and 7.8).



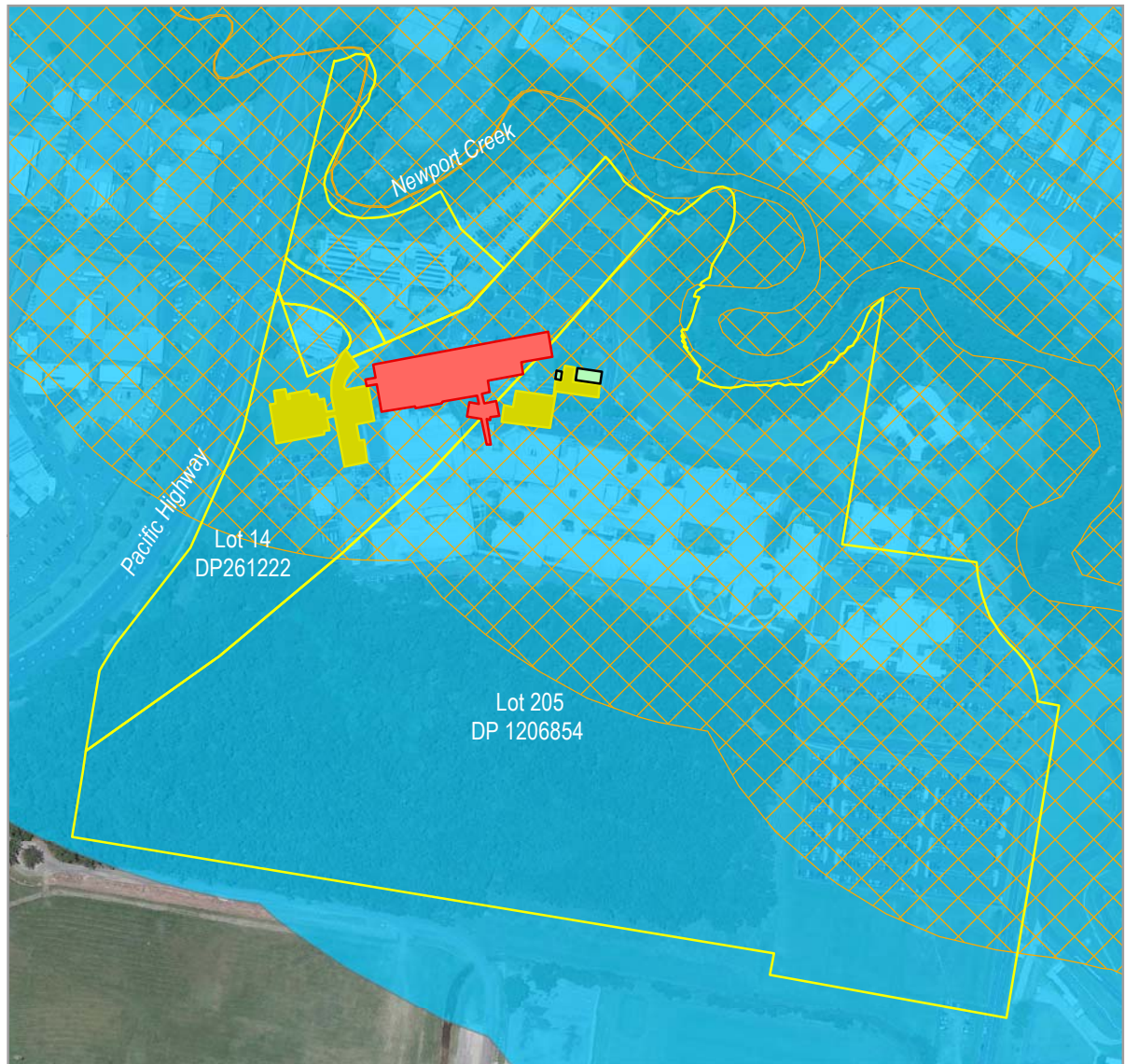
LEGEND

- Coffs Harbour Health Campus
- Extent of road works
- New build
- New sub station and generator
- Coastal wetland
- Proximity area for coastal wetland



0 100

GeoLINK
environmental management and design



LEGEND

- Coffs Harbour Health Campus
- Extent of road works
- New build
- New sub station and generator
- Coastal use area map
- Coastal environment area map



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GeoLINK
environmental management and design

Coastal Use and Environment Area



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

The object of this policy is to provide for a State-wide planning approach to the remediation of contaminated land. It 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.
- Specifying certain considerations that are relevant in rezoning land and in determining development applications in general and development applications for consent to carry out remediation work in particular.
- Requiring that remediation work meets certain standards and notification requirements.

Coffey were engaged by HI to undertake a Phase 1 Preliminary Contamination Assessment as part of the project. This report is attached as **Appendix K** and is discussed in detail in **Section 7.10**.

5.3.6 State Environmental Planning Policy (Infrastructure) 2007 (ISEPP)

State Environmental Planning Policy (Infrastructure) 2007 (ISEPP) aims to facilitate the effective delivery of infrastructure across the State. Division 10 of the ISEPP outlines the approval requirements for health facilities. Clause 58 of the ISEPP stipulates the thresholds for Health Facilities that can be assessed as Development without Consent. The Proposal does not meet any of these requirements and therefore requires development consent.

A matter for consideration under the ISEPP is the referral requirements for Traffic Generating Development. Clause 104 and Schedule 3 of ISEPP defines traffic generating development which requires referral to Roads and Maritime for comment. The Proposal would be defined as “hospital” which is required to be referred to Roads and Maritime if the Proposal has a capacity for greater than 200 beds, or 100 or more beds in the instance where its access connects to, or within 90 m of, a classified road. The CHHC has access to the Pacific Highway and the proposed hospital expansion would increase beds and treatment spaces by more than 100 and therefore consultation with Roads and Maritime is required.

Roads and Maritime were consulted during the SEARs process and has advised that Roads and Maritime Services issued a letter to the NSW Department of Planning and Environment dated 21 December 2017 advising of its requirements for the EIS. Roads and Maritime were also consulted during preparation of the Transport and Accessibility Assessment. Traffic and transport matters have been addressed in **Section 7.5**.

5.3.7 State Environmental Planning Policy (State & Regional Development) 2011

The relevant provisions of this SEPP are discussed in detail in **Section 5.1.2**.

5.4 Coffs Harbour Local Environmental Plan 2013 (LEP 2013)

5.4.1 Site Zones

SP2 Infrastructure – Health Service Facilities

The SP2 Infrastructure zone objectives are:

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

The Proposal is consistent with the SP2 zone objectives as the Proposal is for the expansion of Health Services facility.

E2 Environmental Conservation

The E2 Environmental Conservation zone objectives are:

- To protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values.
- To prevent development that could destroy, damage or otherwise have an adverse effect on those values.

Development of a Health Services facility within the E2 zone would not be consistent with any of these zone objectives.

Illustration 5.1 shows the zoning of the site. Both projects are located within the SP2 Infrastructure zone.

5.4.2 LEP Provisions

The relevant clauses of LEP 2013 are discussed in **Table 4.1**.

Table 5-2 Coffs Harbour Local Environmental Plan 2013

Local Planning Instruments and Controls		
LEP 2013	Clause 4.3 Height of Buildings	There is no maximum height control for the land zoned SP2 Infrastructure zone. Development within the E2 zone has a maximum height control of 8.5 m. The Proposal complies with the requirements of this clause.
	Clause 4.4 Floor Space Ratio	There is no maximum floor space ratio on the site.
	Clause 7.1 Acid Sulfate Soils (ASS)	The Campus is located within land mapped as Class 1 and 3 and has a high probability of ASS occurrence. An assessment of the impact on ASS has been prepared by Coffey (refer Appendix M). ASS impacts are discussed in detail in Section 7.10 .
	Clause 7.3 Flood Planning	The Flood Planning Map identifies the site as being flood prone land. A flood study has been prepared by Bonacci (refer Appendix T). Flood impacts are addressed in Section 7.13 .
	7.4 Terrestrial biodiversity	The site contains land that is mapped as biodiversity lands (vegetated land in the south-west

Local Planning Instruments and Controls

		of the site). Biodiversity impacts are discussed in Section 7.1 .
	7.6 Riparian Land and watercourses	The site adjoins Newports Creek which is an identified watercourse. Any development within 40 m of this watercourse requires an assessment that demonstrates that the Proposal will not have any adverse impact on the following: ■ the water quality and flows within the watercourse ■ aquatic and riparian species, habitats and ecosystems of the watercourse ■ the stability of the bed and banks of the watercourse ■ the free passage of fish and other aquatic organisms within or along the watercourse ■ any future rehabilitation of the watercourse and riparian areas. The Proposal is located approximately 60 m of Newport's Creek.
	7.8 Koala Habitat	The site is identified as containing Core Koala Habitat. As discussed in Section 7.1 there will be no significant impact to biodiversity.
	7.9 Air space operations	The site is located within the Airport Height Limitations Map within LEP 2013. A protected Airspace Report has been prepared for the Proposal and is attached as Appendix X . The findings of this report and impacts on air space operations is discussed in Section 7.22 .
	7.11 Essential Services	All essential services are available to the site. The need for augmentation of any of these facilities is outlined in the Services reports attached as Appendix X and is further discussed in Section 7.11 .

5.5 Development Control Plans

The Coffs Harbour Development Control Plan (DCP) 2015 supports the provisions of Coffs Harbour LEP 2013 and provides a set of development objectives and provisions for development within the Coffs Harbour LGA. DCPs are not a relevant matter for consideration in the assessment of SSD. The Proposal is therefore not subject to the requirements of DCP 2015. Regardless of this, the Proposal is generally consistent with the provisions of DCP 2015.

5.6 Developer Contributions Plan

There are a number of developer contribution plans that apply to development within the Coffs Harbour LGA. Advice issued from the Department of Planning and Environment states that in principle, the limitations on the imposition of developer contributions on public sector developments remain as outlined in Circular D6 – Crown Development Applications and conditions of consent (DLWC 2002, page 12 Section 27) which states that “*Crown developments for community services e.g. education, health, community services and law and order are exempt from general developer charges.*”



Further to this, HI acknowledges that there a number of potentially relevant contributions plans for the Coffs Harbour LGA. Although there might not be specific provisions for exemptions for health services facilities, the expansion of the Coffs Harbour Hospital will provide an expanded \$120 million hospital facility including an increased bed capacity from 319 to 440 and additional and improved services as described in **Section 3**.

This facility will provide a substantial public benefit to the local and regional community and will provide local employment without creating an unreasonable demand on local infrastructure.

The expansion of the Coffs Harbour Hospital provides a significant investment in social infrastructure to the area and will provide a high level of community service and benefit. On that basis, HI is of the view that development contributions should not be levied for this Proposal.

5.7 Other NSW Legislation

5.7.1 Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* (POEO Act) includes provisions relating to the protection of the environment. One of the objectives of the Act is to protect, restore and enhance the quality of the environment in NSW, having regard to the need to maintain ecologically sustainable development. There are serious offences under this Act for causing pollution of air, noise, water or land. NSW Health and the appointed contractor are required to meet the waste licensing obligations of Clauses 39 to 42 of Schedule 1 of the POEO Act in relation to the proposed works.

The Contractor and Health NSW are obliged to notify OEH when a “pollution incident” occurs that causes or threatens “material harm” to the environment.

5.7.2 National Parks and Wildlife Act 1974

The *National Parks and Wildlife Act 1974* (NPW Act) provides the basis for the legal protection and management of Aboriginal sites within NSW. Sections 84 and 90 of the NPW Act provide statutory protection for any physical/ material evidence of Aboriginal occupation of NSW and places of cultural significance to the Aboriginal community. The key principles of the Act in relation to Aboriginal heritage are the prevention of unnecessary or unwarranted destruction of Aboriginal objects, and the active protection and conservation of objects which are of high cultural significance. It is an offence to knowingly disturb an Aboriginal object, irrespective of its nature or significance, without the prior consent of the Director-General of the NSW OEH.

A due diligence assessment prepared by Everick Heritage for the proposed development (refer **Section 7.7** and **Appendix H**). The assessment found that, given the extent of existing disturbance and the overall Project footprint, the proposed extension of the CHH is unlikely to result in further significant harm to Aboriginal Heritage. The assessment also contained precautionary recommendations if Aboriginal objects are identified during works safeguards which are documented in **Section 9**.



5.7.3 Fisheries Management Act 1994

Concurrence is required from the Minister for Department of Trade and Investment, Regional Infrastructure and Services (TIRIS) (formerly Industry and Investment) for dredge and reclamation works on land that is periodically inundated by water in accordance with Section 199 of the *Fisheries Management Act 1994*.

The Proposal is not within a marine environment and no marine vegetation would be affected.

The works do not occur in areas that are likely to be supporting threatened aquatic habitat for flora or fauna. Thus, the Proposal is considered unlikely to impact on any threatened aquatic species and communities.

5.7.4 Biodiversity Conservation Act 2016

The *Biodiversity Conservation Act 2016* (BC Act) and its supporting regulations commenced on 25 August 2017. The BC Act repeals the *Threatened Species Conservation Act 1995* along with other natural resource management legislation. The BC Act sets out the assessment framework for threatened species.

The BC Act aims to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development. The BC Act place obligations on proponents in relation to the consideration of threatened species and ecological communities.

The BC Act inserts provisions to the planning approvals process via Section 1.7 of the EP&A Act if it is determined under Section 7 of the BC Act that there is likely to be a significant effect on threatened species or ecological communities, or their habitats. In the case of SSD Applications the BC Act requires the preparation of a biodiversity development assessment report (BDAR) unless a waiver is issued.

On this basis, and in accordance with Section 7.9 (2) of the BC Act, the Planning Agency Head and the Environment Agency Head made a determination that the proposed development is unlikely to have any significant impact on biodiversity values and that a Biodiversity Development Assessment Report (BDAR) is therefore not required for this Proposal. The relevant letters confirming this are at **Appendix E**.

5.7.5 Heritage Act 1977

The *Heritage Act 1977* provides for the conservation of items of environmental heritage in NSW. The Act defines heritage as items or places that are of State and/or local heritage significance and include: places, buildings, works, relics, moveable objects and precincts. As part of NSW heritage protection and management the Act establishes a register including an inventory and list to protect the listed items.

Under Section 170 of this Act government departments are required establish and keep a register entitled the "Heritage and Conservation Register". The site is not included on the NSW Health Section 170 Register.

No part of the subject site is listed as an item of state significance on the NSW State Heritage Register. Accordingly, development proposals for this site do not require heritage approval under the *NSW Heritage Act 1977*.

The archaeological provisions of the *NSW Heritage Act 1977* are applicable, however, as all “relics” are protected under the NSW Heritage Act, regardless of whether or not the place is listed as a heritage item at a local, State or national level. Should any unexpected relics be disturbed during excavation of the site they must be managed under the archaeological provisions of the NSW Heritage Act.

5.7.6 Environmental Protection and Biodiversity Conservation Act 1999

Under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), any action that has, or is likely to have, a significant impact on matters of national environmental significance or other aspects of the environment, such as on Commonwealth land, may progress only with approval of the Commonwealth Minister for the Environment under Part 9 of the EPBC Act. A search was undertaken on the Australian Heritage Database which indicates that a site adjoined the subject site. The matters of national environmental significance and Commonwealth land are considered below in relation to the Proposal.

Table 5-3 Commonwealth Environmental Impact Assessment

	<i>Factor</i>	<i>Impact</i>
a	Any Environmental Impact on a World Heritage Property?	
	The proposed works are not in proximity to any lands listed as World Heritage Property, and therefore would have no impact on such lands. Extensive mitigation measures stated within Section 9 of this EIS would negate any potential environmental impacts off-site.	Nil
b	Any Environmental Impact on National Heritage Places?	
	The proposed works are unlikely to have a significant impact on any heritage items. Mitigation measures stated within Section 9 of this EIS would negate any potential environmental impacts off-site.	Nil
c	Any Environmental Impact on Wetlands of International Importance?	
	The proposed works are not in proximity to any lands listed as Wetlands of International Significance (Ramsar Sites), and therefore would have no impact on such lands. Extensive mitigation measures stated within Section 9 of this EIS would negate any potential environmental impacts off-site.	Nil
d	Any Environmental Impact on Commonwealth Listed Threatened Species or Ecological Communities?	
	It is not expected that any Commonwealth listed species would be impacted by the proposed works.	Nil
e	Any Environmental Impact on Commonwealth Listed Migratory Species?	
	It is not expected that any Commonwealth listed migratory species would be impacted by the proposed works.	Nil
f	Does Any Part of the Proposal Involve a Nuclear Action?	
	The Proposal does not involve a nuclear action.	Nil
g	Any Environmental Impact on a Commonwealth Marine Area?	
	The Proposal does impact on a Commonwealth Marine Area.	Nil

6. Non-statutory Planning Framework

6.1 NSW State and Premier Priorities NSW

NSW State and Premiers Priorities are the strategic vision by the NSW State Government, including 12 personal priorities of the Premier and 18 State priorities being action by the NSW Government. An assessment of the Proposal against relevant priorities is provided in **Table 6.1** below.

Table 6-1 Consistency with NSW State and Premier Priorities NSW

Relevant Priority	Comment
Premier's Priorities	
Creating Jobs	The Proposal will result in a significant increase in operational jobs as a result of the proposed expansion of Coffs Harbour Facility and will add approximately 290 to the number of construction jobs in NSW.
Delivering Infrastructure	The Proposal represents a substantial regional infrastructure project for the NSW Government. The project represents a capital investment value of just over \$120 million.
Improving Government Services	The current hospital facilities in Coffs Harbour require expansion to keep up with demand. deliverables and government objectives. The Proposal will greatly improve health services within the Coffs Coast Region.
Improving service levels in hospitals	The Proposal will greatly improve health services within the Coffs Coast Region.
NSW State Priorities	
Encouraging business investment	The proposed capital investment value of the project will generate significant economic spins offs to the regional economy of the Coffs Coast.
Building infrastructure	The Proposal represents a substantial regional infrastructure project for the NSW Government. The project represents a capital investment value of just over \$120 million.
Cutting wait times for planned surgeries	The Proposal seeks to significantly increase and improve surgical facilities at the Coffs Hospital.

The project is therefore considered to be consistent with relevant Premier and NSW Government Priorities as it will build infrastructure, add to the creation of construction jobs and will improve Health Facilities for the residents of the Coffs Coast Region.

6.2 North Coast Regional Plan

North Coast Regional Plan 2036 (NCRP 2036) is the NSW Governments blueprint for land use planning priorities and decisions to 2036. It provides an overarching framework to guide subsequent and more detailed land use plans, development proposals and infrastructure funding decisions. While a series of priority actions are included, medium and longer-term actions will be identified to coincide with population growth and economic change. The Proposal is consistent with the following goals and Direction of NCRP 2036:

Goal 2: A thriving, interconnected economy

Direction 5: Strengthen communities of interest and cross-regional relationships.

Direction 6: Develop successful centres of employment.



Goal 3: Vibrant and engaged communities

Direction 14: Provide great places to live and work.

Direction 15: Develop healthy, safe, socially engaged and well-connected communities.

Direction 16: Collaborate and partner with Aboriginal communities.

Direction 17: Increase the economic self-determination of Aboriginal communities.

Direction 21: Coordinate local infrastructure delivery.

6.3 NSW Long-Term Transport Master Plan 2012

The NSW Long-Term Transport Master Plan provides a framework for delivery of integrated and modern transport systems. The subject site is located in Coffs Harbour on the Pacific Highway approximately four kilometres from the central business district (CBD). It has excellent road connections north and south, making access by car (or motorcycle) relatively easy. It is also serviced by an alternate access onto Stadium Drive. The site is serviced by public and private transport modes including, private cars, taxis, and buses. There is also a community transport service that caters for those who have limited transport options in the Coffs Coast Region. These services and their adequacy to meet the likely future demand from the proposed development area is addressed in **Section 7.5**.

6.4 Future Transport Strategy 2056 and Supporting Plans

Future Transport 2056 is an update of NSW's Long-Term Transport Master Plan. It is a suite of strategies and plans for transport developed in conjunction with the Greater Sydney Commission's Sydney Region Plan, Infrastructure NSW's State Infrastructure Strategy, and the Department of Planning and Environment's Regional Plans, to provide an integrated vision for the State. The Future Transport Strategy sets the 40-year vision, directions and outcomes framework for customer mobility in NSW, which will guide transport investment over the longer term. It will be delivered through a series of supporting plans. The Services and Infrastructure Plans set the customer outcomes for Greater Sydney and Regional NSW for the movement of people and freight to meet customer needs and deliver responsive, innovative services. The plans will define the network required to achieve the service outcomes. The supporting Plans are more detailed issues-based or place-based planning documents that help to implement the Strategy across NSW.

Coffs Harbour is located approximately half way between Sydney and Brisbane which are linked by the Pacific Highway. The Pacific Highway upgrade, is due to be completed by 2020, will better connect Sydney and Brisbane making traveling between the two cities significantly shorter and safer. Coffs Harbour will gain significant benefit from the upgrade and its population is set to increase because of its location, lifestyle and scenic beauty. The proposed Coffs Hospital expansion is essential in meeting the demands of this predicted population growth.

The expansion of the hospital within the existing CHHC provides for quality and accessible health care services.



6.5 Crime Prevention Through Environmental Design (CPTED) Principles

Crime Prevention through Environmental Design (CPTED) is a crime prevention strategy that focuses on the planning, design and structure of cities and neighbourhoods. CPTED aims to create the reality (or perception) that the costs of committing crime are greater than the likely benefits. This is achieved by creating environmental and social conditions that:

- Maximise risk to offenders (increasing the likelihood of detection, challenge and apprehension)
- Maximise the effort required to commit crime (increasing the time, energy and resources required to commit crime)
- Minimise the actual and perceived benefits of crime (removing, minimising or concealing crime attractors and rewards)
- Minimise excuse making opportunities (removing conditions that encourage/ facilitate rationalisation of inappropriate behaviour).

CPTED employs four key strategies. These are territorial re-enforcement, surveillance, access control and space/ activity management. A Safer by Design assessment of the Proposal has been prepared in **Section 7.4**.

6.6 Planning Guidelines for Walking and Cycling.

The Planning Guidelines for Walking and Cycling aim to assist land use planners and related professionals to improve consideration of walking and cycling in their work. The CHHC is already well serviced by dedicated walking and cycling paths including links to the CBD, the nearby Coffs Coast Sport and Leisure Park, Southern Cross University Coffs Harbour Campus and the village of Sawtell. The Proposal will benefit significantly from this existing infrastructure.

6.7 Healthy Urban Development Checklist, NSW Health

The purpose of the Healthy Urban Development Checklist is to assist health professionals to provide advice on urban development policies, plans and proposals. It is intended to ensure that the advice provided is both comprehensive and consistent. The checklist is principally about helping to answer the questions:

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

The Proposal will enable the expansion of the existing CHH. The proposed development will provide improved facilities whilst improving the efficiency of the hospital. As discussed in **Section 7.5**, the subject site has good proximity to public transport facilities and services. Provision is to be made for cycling and pedestrian access (refer **Sections 7.5**). The site has good access to existing housing. The Proposal has also adequately addressed community safety and security (refer **Section 7.4**). It is therefore considered that the Proposal is consistent with the NSW Healthy Urban Development Checklist.



6.8 Better Placed – An integrated design policy for the built environment of NSW 2017

Better Placed is an integrated design policy for the built environment of NSW. It seeks to capture our collective aspiration and expectations for the places where we work, love and play. It creates a clear approach to ensure we get the good design that will deliver the architecture, public places and environments we want to inhabit now and those we make for the future.

The design response and urban design considerations are discussed in **Sections 7.2** and **Appendix B**. Overall, the building responds to clinical needs, functionality and identifies as a hospital. The urban design response achieves effective integration of the development into the existing health campus and fulfils the accessibility, operational and security needs of a hospital facility. The expansion design will be a welcoming environment, supported by a visually pleasing and purposeful built form that supports patients, staff and visitors. For further information refer to the built form and urban design statement as part of the architectural plans at **Appendix B**.



7. Environmental Assessment

7.1 Biodiversity and Vegetation

7.1.1 Waiver from preparing a Biodiversity Development Assessment Report (BDAR)

As outlined in **Section 5.2**, the Proposal is within a significantly disturbed area. Existing native vegetation elsewhere on the site will be retained. The proposed hospital expansion would have very low biodiversity impacts. On this basis, and in accordance with Section 7.9 (2) of the BC Act, a request to the Planning Agency Head and the Environment Agency Head was made for a BDAR not to be required for the SSD application for the Proposal.

In accordance with Section 7.9 (2) of the BC Act, the Planning Agency Head and the Environment Agency Head made a determination that the proposed development is unlikely to have any significant impact on biodiversity values and that a Biodiversity Development Assessment Report (BDAR) is therefore not required for this Proposal. The relevant letters confirming this are at **Appendix E**.

For context and an understanding of the site and the limited potential impacts, the following is provided with regard to biodiversity at the site.

7.1.2 Existing Environment

A Biodiversity Assessment was prepared in order to gain the BDAR waiver. The assessment found that site has been historically cleared in the past and the affected area comprises mown grassland and landscaping. Results of the Biodiversity Assessment are as follows:

- No threatened flora species were recorded
- No Threatened Ecological Communities (TECs) occur within the Proposal footprint
- No threatened fauna species were recorded; based on the habitat present and the site location there is potential for several threatened fauna species to utilise the site on a seasonal or opportunistic basis.

The site of the Proposal is a highly modified and disturbed environment with standalone ornamental (anthropogenic) plantings found throughout the hospital site. These are mainly native with some exotic species intermixed. Habitat connectivity to the site is also fragmented and highly disconnected due to the surrounding open recreation areas and developed and industrial areas. Vegetation to the north and south of the proposed expansion area comprises areas of dry, wet and swamp sclerophyll forest. Equivalent plant community types (PCT) in the NSW Vegetation Information System (VIS) are shown at **Table 7-1**.

Table 7-1 Vegetation Communities and PCTs

<i>Vegetation community</i>	<i>Equivalent PCT</i>
Coast and Escarpment Blackbutt Dry Forest (CH_DOF01)	<i>PCT 697 Blackbutt - Turpentine open forest of the foothills of the NSW North Coast Bioregion</i>
Coastal Swamp Mahogany Forest (CH_FrW02)	<i>PCT 1230 Swamp Mahogany swamp forest on coastal lowlands of the NSW North Coast Bioregion and northern Sydney Basin Bioregion</i>



Vegetation community	Equivalent PCT
Foothills to Escarpment Brush Box – Tallowood – Blackbutt Wet Forest (CH_WSF05)	<i>PCT 752 Brush Box - Turpentine shrubby open forest of the coastal ranges of the NSW North Coast Bioregion</i>

The Coastal Swamp Mahogany Forest (CH_FrW02), within the south of the site is characteristic of the TEC *Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South-East Corner Bioregions*. The Proposal does not impact on this vegetation. The expansion area is highly modified and subject to mowing and ongoing maintenance. Areas of consolidated native vegetation in the north and south of the site are relatively undisturbed and in good condition.

7.1.3 Potential Impacts and BDAR Waiver

The Proposal occurs within a highly modified area and would have negligible ecological impacts. The Proposal footprint comprises, a car park, mown grass, small areas of landscaping and several buildings. None of these areas provide any significant biodiversity value.

The Proposal would utilise external lighting and lighting design will be consistent with AS4282 – Control of obtrusive effects of outdoor lighting. This would not be a significant increase from the current lighting usage and would be unlikely to affect the foraging behaviours of any nocturnal fauna.

Given no significant impacts are likely, a BDAR waiver was granted by the relevant agency heads. As a precautionary measure to minimise ecological impacts, standard recommended safeguard measures are included in **Section 9**.

7.2 Built Form and Urban Design

MSJ Architects prepared a Built Form and Urban Design Statement to address the SEARs. This is attached as **Appendix B**. A summary of how the design has responded to built form, urban design and visual amenity considerations is provided below.

7.2.1 Surrounding Development

The surrounding locality of the CHHC has a diverse land-use and landscape character of, industrial, vegetated land/ riparian area cemetery, open space and spot and recreation. The overall visual identity of the site is that of a health services precinct set amongst areas of vegetated land to the north and the south, opens space to the east and industrial development to the west. The entry road from the Pacific Highway presents as a normal urban street on a standard intersection. The Health Campus is well signed.

7.2.2 Site Layout, Open Space, Streetscape

The proposed new building has been sited and suitably setback to provide clear, sight lines from the main entrance road and across the proposed new forecourt area. The open public space of the forecourt will provide a new civic presence to the campus and accommodate a bus stop with minimal travel distance the new front of house as well as the existing Private Medical Centre.



The proposed new building will be five storeys high on the northern main façade and will be 132 m long. The height to the top of the lift core which provides access to the carefully integrated helicopter pad is approximately 27.7 m AHD. The length and height of the building has been modulated with the inclusion of a deep colonnade to provide weather protection along the ground floor as well as the provision of strongly expressed sun control on the upper floors. The proposed “bulk” of the building is further addressed on the north elevation above the colonnade by defining two “slipped” horizontal blocks, which make reference to the horizontal nature of the existing CHH.

The overall depth of the building at the core is 36.5 m. The mass on the southern side of the building is carefully articulated to reduce in form and scale. Also driven by the functional planning, the stepped arrangement of the Proposal allows warm winter sunlight to reach the southern courtyards.

7.2.3 Public Space, Courtyards and Security

The proposed landscaped forecourt provides a new civic address, sense of place and pleasant arrival space to the north of the new development. The space will enhance the public movement between the adjoining private medical centre, the proposed new bus stop and the front of house of the new hospital building. The location of the new bus stop also eliminates the need for the buses to move through the carpark improving pedestrian safety. Landscaped courtyards will link the new building back to the existing hospital and provide a pleasant human scale to the space around the proposed centrally located cafeteria. The cafeteria will open on to the secure courtyards which will become a communal hub between the new and existing buildings. It will also visually activate the proposed link from the new front of house to the existing hospital's entry lobby. The overview of the courtyards, from the stepped southern elevation and the public cafeteria, will help to encourage passive surveillance to reduce anti- social behaviour.

7.2.4 Materials and Colours

The palette of materials selected for the new hospital, aim to reflect the sand dune location and forest timber character of Coffs Harbour. Rather than direct reference to the sea, the proposed materials embody ochre and grey hues of sand, sandstone, rock and natural timber.

To address issues of maintenance, wear and tear and graffiti more robust materials have been selected around the base of the building. This will include light sandstone coloured brick work, sandstone cladding in select locations such as the reflection room near the front of house and vertical timber cladding (weather protected by the under-croft space) or wood composite expressing the curved forms that define the pedestrian flow and frame the flat planes of glazing at the entry lobby.

Light weight metal (perhaps porcelain or integral finish fibre cement) cladding material, in greys and whites, is proposed for the upper levels. Extruded aluminium will form the vertical and horizontal sun control projections on the northern façade.

The proposed hospital roofs will generally be metal decking with five-degree falls. To enable views out from windows located adjacent to wide lower stepped forms, nominally flat concrete roofs will be detailed with minimal falls and waterproof membrane finish.



7.2.5 Future Expansion

Aligned with the western end of the existing campus, the linear footprint of the proposed new hospital building is oriented due north. The resultant space which opens up between the Proposal and the eastern end of the existing campus, which skews in plan to the north east, would adequately support any anticipated future expansion of the hospital.

7.3 Visual Impact and Amenity

The visual impact of the Proposal was assessed through consideration of visual modification to the existing environment caused by the Proposal and the visual sensitivity of the surrounding environment. Visual modification refers to the effects the Proposal has on the existing environment. It compares the appearance of the development, the existing environment's ability to absorb the development's appearance and the distance at which the development is viewed. These visual impacts compare visual qualities to the existing environment before development to provide a methodical comparison. Visual modification is furthermore influenced by vegetation including tree height and foliage density, as well as topography and other surrounding landscape features, and considers their ability to screen or buffer unwanted views or accentuate desired vistas. Massing, design features, colours and textures contrasting to the existing environment also influence the level of visual modification.

7.3.1 Assessment Methodology

The method applied to assessing the visual impact of the Proposal on the surrounding landscape and visual amenity involved a systematic evaluation of the existing visual environment and applying judgements. The assessment undertaken involved:

- Description of the existing landscape and visual environment
- Review of aerial photograph of site locality and surrounding context
- Comprehensive site inspection and photographic survey to provide a graphic representation of the visual amenity of the landscape illustrating potential views including an analysis of these views
- Visual impact assessment
- Mitigation strategy and visual safeguards to minimise visual impacts.

7.3.2 Existing Visual Environment

The site is located within a mixed-use precinct of South Coffs Harbour which contains sport and recreational facilities, industrial areas, a service centre, the existing health campus and areas of forested/ vegetated land. The site of the new works is currently the internal access, landscaping and the entrance of the existing hospital. The new extension would be built immediately adjacent to the existing main hospital built form.

Typical views into the site are generally limited and/or distant given the size of the health campus site, presence of surrounding vegetation, and the nature and layout of surrounding land uses. Furthermore, there are no proximal residential land uses, with the nearest being approximately 700 m to the north, 950 m to the south and one kilometre to the north-east. Therefore, no residential receiver locations are considered in detail as their sensitivity to the Proposal would be negligible, or even non-existent.

To the north and west of the site are industrial areas, separated from the site by mature forest remnants or the Pacific Highway respectively. To the south is a large remnant of mature forest and beyond this are open sports fields and recreation. To the east and southeast are further sports and recreational uses/ infrastructure.

The current hospital is situated within a large health campus site, with built form generally ranging between one and two storeys in scale, with some higher elements, including the three-storey specialist medical centre situated in the northwest corner.

Overall, due to the context of the site and extent of surrounding screening landscape features and mature forest vegetation, limited views into the site occur. This is well depicted in the aerial image at **Plate 7.1**. The main viewpoints into the site occur from the Pacific Highway, shown in **Plates 7.2** and **7.3**. Another viewpoint between established vegetation into the health campus is from the south-east. However, views toward the development site from this area are largely restricted due to existing built form associated with the health campus. **Plate 7.5** also demonstrates that even distant views from elevated land are restricted.

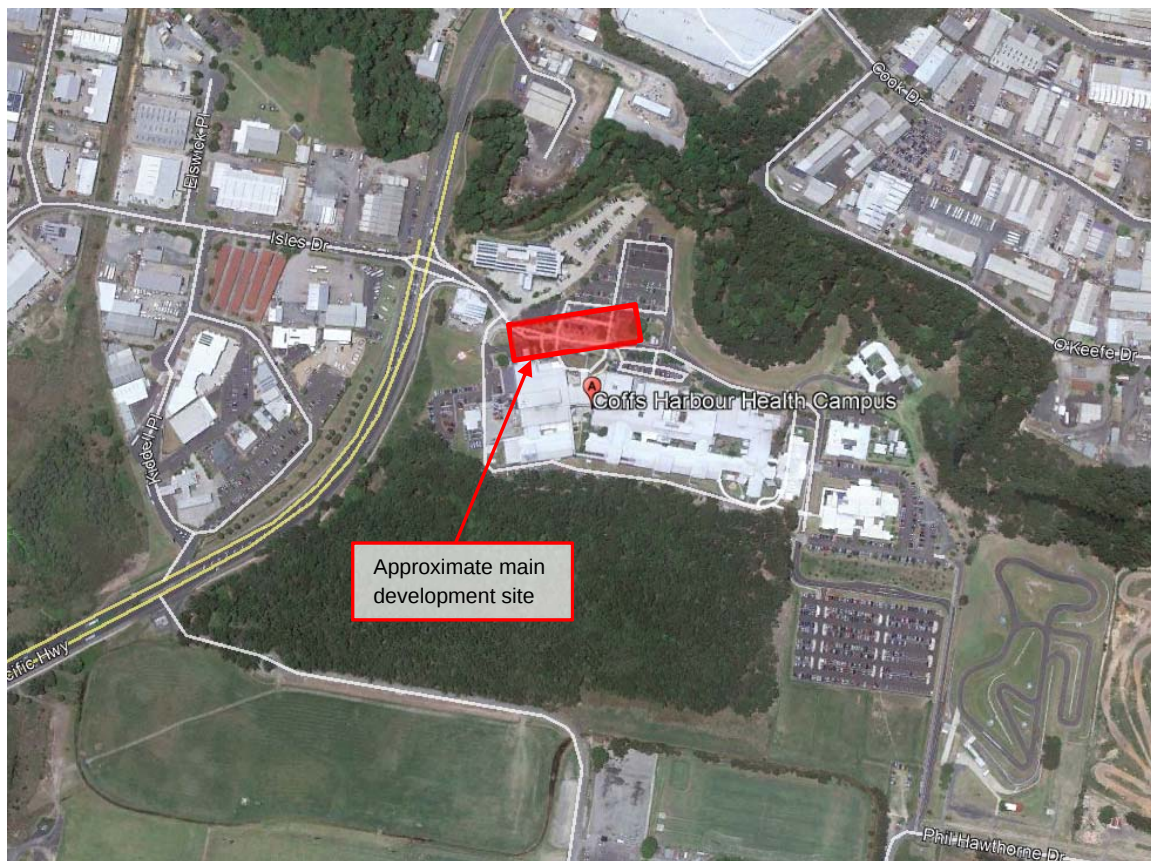


Plate 7-1 Aerial View of Hospital Site and Surrounds



Plate 7-2 View East from Pacific Highway and Hospital/ Isles Drive Intersection



Plate 7-3 View East from Pacific Highway into Hospital Site



Plate 7-4 View North from Stadium Drive (near intersection with Ted Ovens Drive)



Plate 7-5 Elevated View North from Residential Estate

Overall, the development site has limited external exposure and is primarily currently viewed by:

- Staff and visitors of the CHHC
- Pedestrians and vehicles utilising the Pacific Highway immediately west of the site.

7.3.3 Visual Impact Assessment

The proposed development is predominantly five storeys, plus a small pop-up for the lift core overrun associated with the carefully integrated rooftop helipad. The architectural plans at **Appendix B** include perspectives and an artistic impression of the development to help illustrate its design response and visual presence within the site.

The development would have minimal impact on surrounding land uses and views in terms of height and massing given the relatively visually isolated context of the site. The existing health campus is large in area, with built form generally being low-rise and spread out, save for the notable three storey specialist medical centre in the north-west corner of the site. Whilst the proposed expansion and new building introduces more dominant and higher multi-storey built form to the site, the five-storey scale and massing has been purposefully designed, articulated and would be reasonably absorbed into the existing campus and visual context.

No significant tree removal is proposed and the site is well screened to the north and south by mature forest vegetation. It is not expected that the proposed built form would substantially exceed the height of existing mature trees that surround the site and this would screen or filter much of the visual presence of the new building to the north and south, as well as south-east.

Importantly, there are no proximal residential developments. Residential areas are distant from the site and have limited to no direct exposure to the existing health campus or the proposed extension development site. At worst, dwellings (of developing residential land – refer to **Plate 7.5**) situated on raised elevations approximately one kilometre to the south could have the potential to experience some limited views of the new multi-storey building's upper level(s). However, this would be minor and the sensitivity to this would be negligible given the distance and substantial buffer of open recreational space and screening vegetation that occurs between.

Land uses within the immediate locality to the north, west and east are not sensitive to visual impact and are also substantially distant from the proposed development site to mitigate any potential impact.



Most surrounding development would have limited, if any, direct views of the proposed extension. There would be no adverse visual impact in this case.

The main visual change will be experienced from the Pacific Highway immediately west of the site and within the health campus itself. This is evident through the representation of the new building in the artist impression and internal perspective. However, views from the Pacific Highway into the site are generally experienced by people or vehicles passing the site. Separation from the immediate highway interface and the nature of passing traffic means that the level of impact and perception of the development would be reduced and not be considered significant. Furthermore, the western side of the building has been articulated using stepped setbacks away from the Pacific Highway. This, in combination with the selection of materials would ensure the built form, whilst obvious from the west, expresses a level of visual transition and interest. The new building's presence would be robust, but not overbearing in this context.

For staff and visitors of the hospital and health campus, the development will create a notable and large visual change through the introduction of a new multi-storey building. However, staff, users and visitors of the hospital would expect that they are attending a busy and growing regional hospital. The main aspect in terms of on-site visual amenity (compared to off-site visual amenity as discussed previously) is the design response. The Proposal provides for a design response that will ensure an adequately visually aesthetic and functional built form outcome that caters for its role as a hospital.

The length and height of the building has been modulated with the inclusion of a deep colonnade to provide weather protection along the ground floor as well as the provision of strongly expressed sun control on the upper floors. This visually punctuates and break-up the form. The proposed “bulk” of the building, as expressed in the Built Form and Urban Design Statement, is addressed further on the north elevation above the colonnade by defining two “slipped” horizontal blocks, which make reference to the horizontal nature of the existing CHH. Light weight metal cladding material, in greys and whites, is proposed for the upper levels. This aids in softening the visual presence by avoiding heavier and more dominating materials and colours. The stepped setback near the main entry point to the CHHC provides a visual transition to the higher levels of the building.

Although there will be a substantial visual change within, and to an extent into the site from selective viewpoints, the development site is quite visually isolated and distant from any sensitive visual receivers. It is considered that the Proposal will not create a significant deleterious visual impact on the amenity of the local area and is acceptable. The development is consistent with a health complex and the reasonable expectation for future growth at such facilities. The design, and architectural response, will ensure the building is suitably responsive to its context and purpose, and effectively integrates into the site. No adverse visual amenity impacts are expected to be experienced by users of the hospital or surrounding external view points and the development is appropriate.

7.4 Crime Prevention through Environmental Design Principles

Current policies and procedures will be followed to ensure contemporary regulations, occupational health and safety, and accreditation requirements are addressed as part of the new facility. The design has been carried out in accordance with:

- Protecting People and Property, NSW Health Policy and Standards for Security Risk Management in NSW Health Agencies, 2013
- Physical Security Management Guidelines – Australian Government, 2011
- NSW Health Policy & Standards for Security Risk Management in NSW Health Agencies, 2013
- Crime Prevention Through Environmental Design Principles (CPTED).

In terms of assessing the Proposal security and crime prevention measures, the most appropriate document is the Department of Planning and Environment's guideline titled *Crime Prevention and the Assessment of Development Applications (2001)*. The design of the new building has taken into consideration the principles of CPTED, which are outlined in the aforementioned guideline. CPTED principles that need to be considered when designing to minimise crime:

- Surveillance
- Access control
- Territorial reinforcement
- Space management.

Table 7.2 below provides an assessment against the four principles of CPTED with regard to the proposed development.

Table 7-2 CPTED Assessment

CPTED Principles	Comment
Surveillance - The attractiveness of crime targets can be reduced by providing opportunities for effective surveillance, both natural and technical. Good surveillance means that people can see what others are doing. People feel safe in public areas when they can easily see and interact with others. Would-be offenders are often deterred from committing crime in areas with high levels of surveillance. From a design perspective, 'deterrence' can be achieved by: ■ Clear sightlines between public and private places; ■ Effective lighting of public places; ■ Landscaping that makes places attractive, but does not provide offenders with a place to hide or entrap victims.	The following security and surveillance measures have been adopted in the design for the Proposal: ■ All access areas and pedestrian paths associated with the hospital expansion will be well lit and have security and camera surveillance. ■ 24-hour security coverage will be provided by appropriately trained security staff. ■ Visual oversight (either via CCTV or direct vision) of the main entrance and throughout the site and building will be provided. ■ The main entry is clear and legible. It effectively links to the drop-off/ pick-up zone and supports passive surveillance.
Access Control - Physical and symbolic barriers can be used to attract, channel or restrict the movement of people. They minimise opportunities for crime and increase the effort required to commit crime. By making it clear where people are permitted to go or not go, it becomes difficult for potential offenders to reach and victimise people and their property. Illegible boundary markers and confusing spatial definition make it easy for criminals to make excuses for being in restricted areas. However, care needs to be taken to ensure that the barriers are not tall or hostile, creating the effect of a compound. Effective access control can be achieved by creating: ■ Landscapes and physical locations that channel and group pedestrians into target areas.	Access control will be achieved through the following measures: ■ Public access will be through the main entrance during business hours. Access after-hours will be via a secure area where there is a security presence. ■ All none public areas will be secure zones, with the capacity to lock down if required. Access to the secure zone will be via proximity card (or similar system) only. ■ All entrances and exits will be secure with appropriate access control devices. Secure external doors are to be linked to an alarm and duress system, and intercom with video and audible recognition located at external access points.



CPTED Principles	Comment
- Public spaces which attract, rather than discourage people from gathering. - Restricted access to internal areas or high-risk areas (like carparks or other rarely visited areas). This is often achieved through the use of physical barriers.	
Territorial Enforcement – Community ownership of public space sends positive signals. People often feel comfortable in, and are more likely to visit, places which feel owned and cared for. Well used places also reduce opportunities for crime and increase risk to criminals. If people feel that they have some ownership of public space, they are more likely to gather and to enjoy that space. Community ownership also increases the likelihood that people who witness crime will respond by quickly reporting it or by attempting to prevent it. Territorial reinforcement can be achieved through: - Design that encourages people to gather in public space and to feel some responsibility for its use and condition. - Design with clear transitions and boundaries between public and private space. - Clear design cues on who is to use space and what it is to be used for. Care is needed to ensure that territorial reinforcement is not achieved by making public spaces private spaces, through gates and enclosures.	The following design principles and measures have been adopted to provide for territorial enforcement: - Provision of an attractive safe outdoor gathering space for staff and visitors outside the building. - Provision of an all-weather space. - Contemporary and attractive finishes. - Generous covered entry pathways to allow ease of access for all visitors including less mobile patients.
Space Management - Popular public space is often attractive, well maintained and well used space. Linked to the principle of territorial reinforcement, space management ensures that space is appropriately utilised and well cared for. Space management strategies include activity coordination, site cleanliness, rapid repair of vandalism and graffiti, and the replacement of burned out pedestrian and car park lighting and the removal or refurbishment of decayed physical elements.	The following measures and principles have been adopted to ensure appropriate space management: - A hardy planting schedule. - Implementation of an ongoing maintenance program. - Contemporary and attractive design of entry forecourt. - External surfaces will be selected with consideration of future cleaning, maintenance and durability.

It is considered that the proposed design measures will significantly reduce the risk of criminal activities. The Proposal provides adequate public and passive, surveillance and does not provide opportunities for concealed criminal behaviour; therefore, suitably addressing principles of crime prevention through environmental design.



7.5 Traffic, Access and Parking

Seca Solution Pty Ltd was commissioned to prepare a Transport and Accessibility Impact Assessment, considering traffic, access and parking, for the proposed expansion of the CHH. The scope of the report (provided at **Appendix F**) was to review the external traffic movements associated with the proposed development and to review the parking demands. The report provides advice on access, car parking, and green travel opportunities. The assessment includes consideration of the following:

- Assess impact on the local road network due to the additional traffic flows
- Assess the impact of the additional parking generated by the proposed development
- Review the access arrangements for the development
- Review the service arrangement for the development
- Assess any other transport impacts associated with the development.

The full Transport and Accessibility Impact Assessment can be viewed in **Appendix F**.

7.5.1 Existing Environment

The subject site is located a few kilometres south of the Coffs Harbour CBD and is situated adjacent to the Pacific Highway.

The main access to and from the CHHC is off the Pacific Highway opposite Isles Drive. This intersection is under traffic signal control with dedicated right turn lanes in both directions on the Highway. Left turn slip lanes are also provided for access to and from the CHHC. Pedestrian crossing facilities are provided on all approaches to this intersection except for the Highway southbound approach.

A secondary access is also available from the Pacific Highway via Stadium Drive and Phil Hawthorne Drive. These accesses will be retained as part of the expansion project.

The existing hospital caters for 319 beds and treatment spaces.

7.5.1.1 Public Transport

The transport environment at the proposed site is served by multiple transport modes that are potentially available to staff and the public, including

- Bus routes and associated facilities
- Community transport
- A network of pedestrian infrastructure (paths and crossings)
- Private vehicle.

7.5.1.2 Existing Traffic Conditions and Road Hierarchy

The following is a summarised description of the existing roads relevant to the CHHC site:

- Pacific Highway:
 - The main arterial road through Coffs Harbour past the CHHC is the Pacific Highway. This also provides the primary access point to and from the CHH. Traffic surveys conducted by Seca Solution at the Pacific Highway/ Isles Drive intersection indicate that the Pacific Highway carries up to 2,900 vehicles per hour during peak flow periods. According to RMS traffic surveys peak hour volumes represent about 10 per cent of daily volumes. This being the case, the Pacific Highway would carry around 30,000 vehicles per day past the access to the CHHC.
- Stadium Drive:
 - Stadium Drive is a collector road with a two-lane rural road formation, that generally runs east-west providing a connection between the Pacific Highway and Hogbin Drive.
- Phil Hawthorne Drive:
 - Phil Hawthorne Drive is a seven metre wide local road that provides a north/ south access to sporting fields and other leisure activities within the sporting precinct. It connects with Stadium Drive. About 385 m north of Stadium Drive an access road branches off Phil Hawthorne Drive providing access to the CHHC southern carpark and buildings.

7.5.1.3 Traffic Flows

Seca Solution collected traffic data at the signalised intersection of the Pacific Highway and Isles Drive during a typical morning and afternoon peak period during the school term on Tuesday, 27 June 2017, between 7.30 and 9.30 am and 3.30 to 6.00 pm. The summary of these traffic surveys is provided below:

Table 7-3 Pacific Highway and Isles Drive Intersection Traffic Survey Summary (Seca Solution 2018)

Street	Peak period	Direction flow	Direction flow	Two-way flow
Pacific Hwy (north approach)	AM peak	1,490 northbound	1,254 southbound	2,744
	PM peak	1,415 northbound	1,531 southbound	2,946
Pacific Hwy (south approach)	AM peak	1,278 northbound	826 southbound	2,104
	PM peak	899 northbound	1,339 southbound	2,238
Isles Drive	AM peak	330 eastbound	299 westbound	629
	PM peak	464 eastbound	231 westbound	695
Health Campus Access	AM peak	336 eastbound	119 westbound	455
	PM peak	198 eastbound	289 westbound	487

Results show that the afternoon peak period has higher levels of traffic demand. Consistent with the advice in the RMS *Guide to Traffic Generating Developments* regarding road capacity, the traffic data collected for the project shows that the roads in the vicinity of the subject site are all well within capacity. This is reflective of site observations that traffic flows well in the locality, with the only delays created by the traffic signals.

Using the above data and the RMS *Guide to Traffic Generating Developments*, this would indicate the following daily traffic flows in this location:

- Pacific Highway north of the Health Campus: 30,000 vehicles per day
- Pacific Highway south of the Health Campus: 22,000 vehicles per day
- Isles Drive: 7,000 vehicles per day
- Health Campus access: 5,000 vehicles per day.

7.5.1.4 Existing Intersection Level of Service

To confirm the current road network operation, an assessment was undertaken by Seca Solution using SIDRA modelling. The results of the modelling are shown in **Table 7.4**.

The Transport and Accessibility Assessment provides observations and detailed analysis of the road network and intersection operation. In summary, although the SIDRA intersection modelling indicates that the Level of Service (LoS) on these movements are unacceptable due to delays, in practice these delays are acceptable as they are unavoidable due to the length of cycle time required to provide for the through movements associated with the Pacific Highway. The sheltered right turn lanes appear adequate to accommodate the existing demands, not creating queues that impact on the through lane.

Table 7-4 2017 Intersection Operation – Pacific Highway / Isles Drive / Health Campus (AM/PM) (Seca Solution 2018)

Approach	Level of Service	Average Delay (seconds)	95% Back of Queue (metres)
Pacific Highway South	D / C	50.9 / 42.3	334.0 / 200.7
Coffs Harbour Hospital	E / E	59.1 / 65.1	28.3 / 74.6
Pacific Highway North	B / B	25.5 / 21.4	159.6 / 233.1
Isles Drive	D / C	44.2 / 37.7	92.7 / 115.2
Overall	C / C	39.8 / 33.7	334.0 / 233.1

Data reviewed in the Transport and Accessibility Assessment indicates that this intersection is operating at a high level of safety particularly considering the high volume of traffic at this location.

7.5.2 Future Developments/ Traffic Environment

Future development is proposed for the North Boambee Valley with access proposed off North Boambee Road. This additional development will be focussed north of the site; however, it may have some impact by increasing flows along the Pacific Highway within the vicinity of the site. This has been allowed for within the background growth included for the Pacific Highway.

Southern Cross University and Coffs Harbour TAFE, located at the intersection of Stadium Drive and Hogbin Drive south-east of the Health Campus, has the potential for future expansion which may see increased traffic volumes on the local road network. However, any future expansion would be subject to assessment as part of the approval process. Areas surrounding the CHHC are largely developed and it is unlikely that there will be any significant developments that will impact on traffic growth on the road network near the Campus.



Seca Solution undertook consultation with RMS regarding the Coffs Harbour bypass upgrade. The following points are made in the assessment regarding the bypass:

- This new road will join into the Pacific Highway south of the Englands Road roundabout and travel west through North Boambee Valley. The SEARs for the bypass project indicate that traffic volumes on the Pacific Highway through the Coffs Harbour CBD in 2015, were about 32,000 vehicles per day. About 9.3 per cent are heavy vehicles. The current level of service (LOS) in the Coffs Harbour CBD section is D/E during peak times
- This bypass will see significant numbers of these vehicles being removed from the existing corridor into which the hospital connects
- The Federal Government recently announced in May 2018 a \$971 million funding commitment towards the Coffs Harbour Pacific Highway Bypass.

7.5.3 Traffic Generation

The Transport and Accessibility Assessment outlines that the additional traffic that could be generated by the proposed CHH expansion (the proposed built scope would involve an overall increase from 319 beds and treatment spaces to 440 = 121 additional beds) can be calculated as follows (refer to report at **Appendix F** for further detail - note that calculations have also been considered for projected bed numbers based on the CHHC CSP at 2021 and 2026 representing the worst case scenario; notwithstanding that any expansion beyond the built scope would be subject to a separate assessment and development process):

Number of beds only:

- Proposed Built Scope – 121 additional beds:
 - Peak period traffic generation = $-22.07 + 1.04 \times \text{no. of beds} = -22.07 + (1.04 \times 121) = 104$ trips
- Year 2021 CHHC CSP projections – 97 additional beds:
 - Peak period traffic generation = $-22.07 + 1.04 \times \text{no. of beds} = -22.07 + (1.04 \times 97) = 79$ trips
- Year 2026 CHHC CSP projections – 133 additional beds:
 - Peak period traffic generation = $-22.07 + 1.04 \times \text{no. of beds} = -22.07 + (1.04 \times 133) = 116$ trips

Number of Beds + Staff:

- Built Scope – 121 additional beds = 333 additional staff (average staff per weekday shift estimated at 200):
 - Peak period traffic generation = $-14.69 + 0.69 \text{ beds} + 0.31 \text{ staff} = -14.69 + (0.69 \times 121) + (0.31 \times 200) = 131$ trips
- Year 2021 – 97 additional beds + 133 additional staff (average staff per weekday shift estimated at 80):
 - Peak period traffic generation = $-14.69 + 0.69 \text{ beds} + 0.31 \text{ staff} = -14.69 + (0.69 \times 97) + (0.31 \times 80) = 77$ trips
- Year 2026 – 133 additional beds = 333 additional staff (average staff per weekday shift estimated at 200):
 - Peak period traffic generation = $-14.69 + 0.69 \text{ beds} + 0.31 \text{ staff} = -14.69 + (0.69 \times 133) + (0.31 \times 200) = 140$ trips



The additional traffic demands created by the CHH expansion will see increased demands for vehicles turning into or out of the campus at either the signalised intersection of Pacific Highway and Isles Drive or from the south of the campus along Phil Hawthorne Drive and Stadium Drive.

To provide a robust assessment future traffic distribution were assumed consistent with the existing situation with no allowance for staff who may park to the south of the site and approach or depart along Stadium Drive.

There will also be ongoing increases in demands for through movements along the Pacific Highway due to growth along this road corridor.

The assignment of traffic to the surrounding road network is assumed to be consistent with the existing demands for vehicles turning into and out of the CHHC.

Following distribution applied to both AM and PM peak periods:

- 70 per cent origin/ destination to the north
- 30 per cent origin/ destination to the south

In the morning, approximately 75 per cent of traffic is inbound with the rest outbound. In the evening, approximately 60 per cent outbound with the rest inbound.

7.5.3.1 Impact of Generated Traffic

The additional peak hour traffic that will be generated based on the 2026 worst case scenario is estimated to be 140 trips (70 inward and 70 outward) which equates to approximately 1400 trips per day. The CHHC access road will be the most impacted by this additional traffic, however, it is currently carrying around 5000 vehicles per day and operating well within its capacity. The additional traffic is therefore considered to have a minor impact on daily traffic flows.

The additional 1400 daily trips will also have no impact on the Pacific Highway as it is currently carrying approximately 30,000 vehicles per day.

The intersection of the Pacific Highway with Isles Drive and the CHHC has been modelled by Seca Solution using SIDRA Intersection 7 to assess its current and future operation allowing for the proposed expansion of CHH. Three scenarios have been considered including:

- Existing 2017 Operation
- 2021 Design Year - Allowing for expansion of the hospital to provide 97 additional beds, 133 additional staff and 1.8 per cent per annum growth along the Pacific Highway
- 2026 Design Year - Allowing for expansion of the hospital to provide 133 additional beds, 333 additional staff and 1.8 per cent per annum growth along the Pacific Highway.

The results of the intersection modelling by Seca Solution are presented in the tables below.

Table 7-5 SIDRA Results – 2021 Design Year – Intersection of Pacific Highway/ Isles Drive/ Health Campus (Seca Solution 2018)

Approach	Level of Service	Average Delay (seconds)	95% Back of Queue (metres)
Pacific Highway South	E / D	57.0 / 43.0	389.5 / 202.7
Coffs Harbour Hospital	E / E	59.6 / 63.8	33.2 / 85.7
Pacific Highway North	B / B	26.3 / 21.2	165.0 / 230.0
Isles Drive	D / C	46.7 / 37.7	94.3 / 115.2
Overall	D / C	43.1 / 34.0	389.5 / 230.0

Table 7-6 SIDRA Results – 2026 Design Year – Intersection of Pacific Highway/ Isles Drive/ Health Campus (Seca Solution 2018)

Approach	Level of Service	Average Delay (seconds)	95% Back of Queue (metres)
Pacific Highway South	E / D	59.5 / 43.1	437.0 / 204.1
Coffs Harbour Hospital	E / E	63.3 / 67.4	38.4 / 99.7
Pacific Highway North	B / B	24.6 / 20.3	165.9 / 227.6
Isles Drive	D / C	47.5 / 37.5	99.5 / 115.2
Overall	D / C	43.7 / 4.3	437.0 / 227.6

The above results demonstrate that:

- Vehicles exiting the hospital will have a negligible impact on the operation of the signalised intersection, with the increased traffic seeing only very minor increases in delays and queuing on the eastern approach.
- Vehicles turning left into the site will also have a negligible impact on the intersection due to the provision of the left slip lane (unsignalised) into the campus.
- The major impact on this intersection will be the increased demand for vehicles travelling north along the Pacific Highway during the morning peak hour, together with the increased demands for vehicles turning right into the site. Queues associated with this right turn exceed the capacity of the right turn lane into the hospital.

The Transport and Accessibility Assessment concludes that should the Pacific Highway be upgraded to bypass Coffs Harbour there will be considerable spare capacity to accommodate the demands associated with growth associated with the proposed development. The earliest this could happen, assuming full funding is available would be 2025 which would coincide with the long-term design horizon for the masterplan.

Regardless, with changes to the phasing of the signalised intersection of the Pacific Highway and Isles Drive the traffic demands associated with 2021 and 2026 future growth scenarios, can be accommodated within the existing road network. The impact has been assessed allowing for development to access via this intersection although it is recognised that traffic will also use the southern approach to access the staff car park and hospital.

The southern access via Stadium Drive and Phil Hawthorne Drive has been demonstrated to operate at an acceptable LoS to 2025 with spare capacity to accommodate the traffic associated with an additional 352 space car park by 2030, which will be the subject of a future development proposal.



This existing access has been assumed to accommodate 40 per cent of staff movements plus outpatients and visitors. Use of this access shall provide relief for traffic demands associated with the main entry, enabling the signalised intersection to operate without significantly impacting upon the intersection performance.

7.5.4 Car Parking

Seca Solution carried out a parking survey and an assessment of the parking demands generated by the Proposal. It concludes that the proposed development anticipates the need to relocate 118 car parking spaces to offset/ align with the number of parking spaces lost as a result of the new building footprint being partially over existing parking. These parking spaces will be relocated in an extension of the existing carpark adjacent to the main entrance (25 spaces) and a new western carpark on the site of the existing helipad (93 spaces, including eight accessible spaces).

The number of parking spaces required to satisfy the future parking demand is:

- Medium scenario 49-88 spaces
- Long-term scenario 67-131 spaces.

The parking surveys conducted on the site show that the existing parking areas within the CHHC are well used throughout the day, with a consistent parking demand evident. However, there were still between 306 - 368 vacant spaces available throughout the day between 9:30 and 2:30, with no discernible peak demand being observed during any particular hour of the day. A review of the existing parking situation therefore demonstrates that these future parking demands can be accommodated within the existing parking supply and no additional parking spaces will be required.

7.5.5 Sustainable Travel Opportunities and Bicycle Provision

The Transport and Accessibility Assessment considered sustainable travel opportunities and alternative modes of transports to further reduce parking demand and encourage alternative travel modes. Supporting active travel, making it easier for employees and visitors to get to and from the workplace and to reduce dependence on private vehicles and parking space is recognised as a positive endeavour for both the environment and participants' health.

The pedestrian movements within the CHHC will be catered for by the high standard of pedestrian facilities including concrete footpaths and pedestrian crossings linking the various carparks to the main buildings. Externally, concrete footpaths are provided on both sides of the Pacific Highway. The Isles Drive intersection is controlled by traffic signals which incorporate pedestrian phases.

The existing bicycle racks and storage for staff and the public is considered adequate based on the transport assessment undertaken. Showers are available for staff members choosing to walk or ride to work.

A number of alternative transportation modes and travel opportunities could be considered and encouraged to help reduce dependence on private vehicles and parking demand, whilst supporting health initiatives. The Transport and Accessibility Assessment outlines a number of options and potential initiatives related to:

- Public transport
- Carpooling
- Cycling and walking
- Tele-conferencing and remote work opportunities
- Parking policies.



Nonetheless, the site does have good public transport bus services and connections to existing pedestrian and cyclist facilities and does not generate the requirement for any additional works. Internal access is arranged and designed to support bus services to and from the hospital. The relocation of existing bike storage, the inclusion of suitable secure bike storage, and access to showers and change facilities for staff shall continue to support riding as an option to the CHHC.

7.5.6 Design Access and Manoeuvrability

Plans included at Appendix C of the Transport and Accessibility Assessment include consideration of ambulance parking bays and access to the ED (Emergency Department) drop off. Swept path for a suitable ambulance vehicle has been undertaken to assess the ED drop off area. Swept path diagrams for a bus and Heavy Rigid Vehicle have also been provided. The development will result in satisfactory access and manoeuvrability.

The site layout will allow for the safe parking of vehicles within the site. The relocated internal parking spaces have been designed in accordance with AS2890 and the internal circulating aisles allow for two-way movements with a minimum width of 5.8 m.

7.5.7 Construction Traffic

Peak demand levels during construction will be up to a maximum of 30 staff with 10 during the demolition work based on-site. All construction staff vehicles will be parked on-site within an allocated parking area.

All construction traffic will travel to and from the site along the Pacific Highway and access the site via the existing main entry road opposite Isles Drive. The Pacific Highway provides access to the wider road network for delivery of construction materials and the disposal of waste from the site.

Due to the nature of the work the maximum number of trucks through the day could be 20 over an average working day and include a range of light vehicles, trucks, rigs, cranes, and plant as outlined in the Transport and Accessibility Assessment.

Vehicular and pedestrian access to the hospital will be maintained at all times but there will be no public access within the site of the construction works with a fence provided to prevent unauthorised access.

The number of heavy vehicles associated with the construction work is low and it is considered that the movement of vehicles in and out of the site for construction works can safely occur with minimal delays to traffic and in a safe manner. No limitation on truck access times is considered appropriate for the project.

There will be minimal impact upon public transport services with no diversions required. The existing bus stops within the site will need to be relocated to work within the various stages of construction.

There will be minimal impact for emergency vehicles and delivery vehicles with no diversions required for normal work days. Pedestrians will be diverted to avoid passing directly across the site.

Traffic routes in and out of the site will be along the arterial road network which will experience minimal impacts due to the works.



Section 6.3 of the Transport and Accessibility Assessment relates to preparation of a Traffic Control Plan (TCP). This has been prepared to meet the requirements of the RTA Traffic Control at Work Sites Manual 2010 Edition. The Plan covers the access requirements to the site and the safe passage of vehicles in and out of the subject site via the Pacific Highway and the existing main entry road and for passing traffic in this location during the construction works.

A TCP providing work site definition and temporary signage requirements will need to be prepared by the construction contractor and implemented for the construction phase.

The TCP will be submitted to the relevant authority for review and approval as required. Subject to the TCP, no adverse traffic related impacts are expected during construction and any disruptions would be minor and can be managed.

7.5.8 Conclusion

The overall conclusion from the investigations carried out by Seca Solution and presented in the Transport and Accessibility Assessment is that traffic, parking and access arrangements for the development proposal would be satisfactory and there is no traffic or parking impediments to the development.

7.6 Ecologically Sustainable Development (ESD)

7.6.1 Sustainable Design Approach

Sustainable building design comes from a holistic and integrated design approach that builds on an increased awareness of site opportunities, form and function. It needs to encompass and target a broad range of topics; that include energy, water, indoor environmental quality, materials, and waste minimisation. The greatest challenge for buildings of this type is to reduce their energy consumption, while maintaining their specific functional needs. Buildings such as hospitals are complex as they consist of a wide range of functional and servicing requirements that can place a high demand on energy and water consumption, and can lead to substantial waste generation. To reduce the high energy and water demands, suitable and appropriate sustainable design initiatives have been considered and implemented in the design of the Coffs Hospital expansion proposal to achieve an environmentally sensitive and energy efficient building. As part of a holistic design approach the design has considered:

- Site selection
- Positioning, massing and orientation of buildings
- Occupant comfort
- Energy and water reduction
- Material selection
- Emissions reduction
- Waste reduction.



7.6.2 Key design considerations

7.6.2.1 Minimisation of resource consumption

Healthcare facilities offer a considerable challenge in their sustainable design approach. They can generate large amounts of waste, be heavy users of materials, energy and water. They incur high chemical use, infection control and strong regulatory requirements. Resource and waste minimisation strategies will be considered and employed during the detailed design, construction and operational phases of the development to ensure efficient use of resources. A preliminary Waste Management Plan (WMP) has been prepared which includes objectives and measures around:

- Waste avoidance and reduction, including reducing materials brought to site through an understanding of the design and construction needs, as well as inventory controls and management
- Waste reuse and recycling
- Handling and storage
- Tracking and disposal.

The Proposal will apply best practice ESD initiatives to ensure the electrical services are designed in such a way that they minimise the building's energy demands and impact on the environment.

7.6.2.2 Natural daylight & daylight uniformity

Hospitals are generally large and complex spaces and it is not practical or feasible to achieve natural daylight to all internal spaces. However, where reasonable, the promotion of natural daylight has been incorporated as far as practical. Furthermore, the building's footprint and layout maximise access to natural daylight and capitalises on the northern aspect. Also driven by the functional planning, the stepped arrangement of the Proposal allows warm winter sunlight to imbue the southern courtyards.

The main drivers for the promotion of daylight are as follows:

- Reduced energy consumption associated with electric lighting
- Benefits to human health and well-being
- Appearances of space.

Artificial lighting associated with the development would use an energy efficient lighting installation, typically achieved using fixtures with an LED light source. For the new Clinical Services Building, an intelligent lighting control system would also be incorporated where possible so that lights are only on as and when they are needed.

7.6.2.3 Ventilation and air-conditioning

Given the operational and clinical needs of hospitals, natural cross-ventilation is not always appropriate or achievable. The new building would be mechanically heated and cooled using efficient plant and equipment and operational controls that support an optimal internal amenity and mode of ventilation, whilst maximising energy efficiency.



7.6.2.4 Climate responsive façade design

The design maximises use of the northern aspect, however it has also considered heat load and gain. Given the northern façade is the main entry of the hospital, it incorporates a reasonable level of glazing to promote external views, passive surveillance, daylight access and articulation of the façade. In response to potential heat gain, the design includes vertical and horizontal sun control projections on the northern façade to help reduce this. The western façade has minimal glazing inclusions, which will also help reduce summer heat gain.

Material selection and insulation properties would also be incorporated in response to local climate considerations and operational needs.

7.6.2.5 Water consumption

The development would incorporate water efficiency measures with the aim to ensure efficient and responsible water consumption that aligns with the operational requirements of a hospital.

The CHH expansion would incorporate water efficient fixtures and fittings. All fittings and fixtures would be WELS star rated, the installation of water saving taps and outlets to reduce water consumption would be adopted. The following ratings would be used:

- 4 WELS stars rated dual flush toilets
- 4 WELS stars rated tapware
- 3 WELS stars rated shower.

Fire services would be designed to ensure testing with no discharge or loss of water.

An Integrated Water Management Plan (IWMP) has been prepared for the Proposal and can be found at **Appendix P**. The IWMP addresses the measures that have been incorporated in this development to reduce the overall water consumption and minimise the effects of the rainwater discharge from the site.

7.6.3 Principles of Ecologically Sustainable Development

The Proposal has also been assessed against the ESD principles outlined in Schedule 2 of the EPAR 2000 which is summarised below.

7.6.3.1 The precautionary principle

Schedule 2 of the EPAR 2000 states “*the precautionary principle*”, namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:

1. *Careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment.*
2. *An assessment of the risk-weighted consequences of various options.*

In the case of the Proposal, the precautionary principle has been applied in the Environmental Assessment (**Section 7**) undertaken for the Proposal. Potential environmental impacts of the Proposal would be minor due to the nature of the works which are predominantly restricted to the existing highly



disturbed nature of the site. The precautionary principle was also applied specifically in regard to flooding. The proposed new building will be protected to the Probable Maximum Flood (PMF) level, by ensuring that entrances are located where the ground floor level is at or above the PMF level, or protected from the PMF level by road kerbs or other measures.

The Proposal is required to address the need to upgrade hospital services to a modern contemporary standard and improve the level of service to the residents of the Coffs Coast. All works would be undertaken in accordance with the safeguards outlined in **Sections 9** of this EIS.

7.6.3.2 Intergenerational equity

Schedule 2 of the EPAR 2000 defines inter-generational equity as “*the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations*”.

The Proposal would not significantly affect the viability of local or threatened species, or any EECs or other environmental resources including water, soil and air. Therefore, local environmental values would not be substantially adversely affected by the Proposal and would be maintained for future generations. Without the works proceeding, the level of hospital services provided to the Coffs Coast would continue to decline. Overall, the socio-economic, safety and environmental safety benefits of the Proposal would occur only at limited minimal potential environmental expense.

7.6.3.3 Conservation of biological diversity and ecological integrity

Schedule 2 of the EPAR 2000 requires the “*conservation of biological diversity and ecological integrity*”, namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration.

The impacts to ecological integrity and conservation of biological diversity at the site have been thoroughly assessed as part of this EIS. No threatened species, endangered populations or TECs are likely to be affected by the Proposal. No populations of native species are likely to be made locally rare or unviable as a result of the Proposal. Consequently, the ecological integrity and biological diversity would be maintained at the site.

7.6.3.4 Improved valuation, pricing and incentive mechanisms

The following principles of valuation, pricing and incentive as per Schedule 2 of the EPAR 2000 are acknowledged as part of this review:

- Polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement.
- The users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste.
- Environmental goals, having been established, should be pursued in the most cost-effective way, by establishing incentive structures, including market mechanisms that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.



This EIS has undertaken a thorough assessment of potential impacts and consequently has developed a set of mitigation measures and safeguards to ensure sound environmental practices and outcomes. The capital investment of the Proposal includes expenditure on ensuring that the building includes adequate ESD measures.

7.7 Aboriginal Heritage

7.7.1 Assessment Approach

The site has been subject to high disturbance and modification due to development of the CHHC in 2001. The site is highly developed with existing buildings, roads, carparks and hardstands. During construction of the site substantial earthworks took place for site preparation, levelling and foundations. The extent of disturbance/ built form and the footprint of the proposed building works is evident in the site analysis and architectural plans prepared for the Proposal (**Appendix B**) as well as various illustrations throughout this EIS. The proposed development footprint occurs within the highly developed area and primary activity zone of the existing hospital. In particular, the majority of the new Clinical Services Building is to be built over existing sealed carparking and roads.

Given the past significant disturbance of the site and siting of the proposed works within a highly modified and urbanised setting, it is considered that undertaking investigations and consultation in accordance with the *Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW 2011* and the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* is not necessary in this instance. Furthermore, the SEARs make no such request or requirement. On this basis, an Aboriginal heritage (due diligence) assessment is adequate and justified.

An Aboriginal heritage (due diligence) assessment was undertaken by Everick Heritage Consultants for the proposed development (refer **Appendix H**). The objective of the due diligence assessment was to determine if there are any areas that have potential to contain Aboriginal cultural heritage and to assess whether the proposed development will destructively impact upon known and/or concealed heritage sites. The approach to the preparation of the assessment was based on the following current best practice guidelines including:

- DECCW, Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW (13 September 2010) (Due Diligence Code of Practice)
- DECCW, Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (24 September 2010)
- DECCW, Aboriginal cultural heritage consultation requirements for proponents 2010. Part 6 National Parks and Wildlife Act 1974 (April 2010) (OEH 2010 guide).

The assessment involved the following tasks:

- AHIMS database search
- Identification of landscape features that indicate the presence of Aboriginal objects
- Discussion with respect to the extent of the development footprint
- Desktop assessment and visual inspection carried out with a member of the Local Area Land Council
- Further investigation and impact assessment.



7.7.2 Site History/ Disturbance

The study area has a long history of disturbance due to previous and existing land uses. The area of the proposed works has been subject to significant topsoil disturbance, including the installation of a bitumen car park, buildings and underground infrastructure. It is also likely that much of the site consists of fill material. As such, The Project Area is within an area which meets the definition of 'Disturbed' under the Due Diligence Code of Practice (OEH 2010).

7.7.3 Aboriginal Heritage Significance

The assessment by Everick Heritage Consultants of the environmental context within which the study area is located suggests that there is generally low potential for Aboriginal objects. A review of the local landscape context in association with the AHIMS search suggests that the study area has low potential for Aboriginal objects and/or buried soil horizons below the current surface level.

A site inspection with Coffs Harbour and District Local Aboriginal Land Council (CHDLALC) senior Site Officer was undertaken throughout the study area. The survey was constrained by grass cover; however, it was considered that there was sufficient ground surface visibility to identify Aboriginal sites, should they have existed. No sites were identified during this survey, and it was not considered that additional archaeological investigation would be required prior to commencement of ground disturbing works. As such, the footprint of the works area associated with development hold very low to no Aboriginal archaeological potential.

7.7.4 Potential Impacts and Recommendations

The assessment prepared by Everick Heritage Consultants concluded that there is a very low likelihood of the Aboriginal objects occurring within the area of the proposed development. This is primarily due to the location of the site away from landforms likely to have a high potential to contain Aboriginal sites and the high extent of previous land disturbance to the site. There were also no recorded Aboriginal sites listed on the OEH Aboriginal Heritage Information Management System (AHIMS) sites register within the subject site.

The assessment provides precautionary recommended mitigation measures for the Proposal which should be adopted if it is approved. These measures include:

- A cultural heritage induction is provided to all contractors who are engaged as site supervisors or act in senior operational roles. It is recommended that the cultural heritage induction is provided by a suitably experienced member of the Aboriginal community or a qualified archaeologist. The purpose of the cultural heritage induction is to:
 - Make staff aware of the survey effort to date and potential for the project area to contain Aboriginal sites;
 - Provide sufficient training for staff to identify Aboriginal objects should they be impacted during construction works; and
 - Ensure that staff are aware of response procedures in the event of any harm to Aboriginal sites during construction works.

- 
- It is recommended that if suspected Aboriginal material has been uncovered as a result of development activities within the Project Area:
 - Work in the surrounding area is to stop immediately;
 - A temporary fence is to be erected around the site, with a buffer zone of at least 10 m around the known edge of the site;
 - An appropriately qualified archaeological consultant is to be engaged to identify the material;
 - If the material is found to be of Aboriginal origin, the Aboriginal community is to be consulted in a manner as outlined in the OEH guidelines: *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (2010).
 - Although it is unlikely that Human Remains will be located at any stage during earthworks within the project area, should this event arise it is recommended that all works must halt in the immediate area to prevent any further impacts to the remains. The site should be cordoned off and the remains themselves should be left untouched. The nearest police station (Coffs Harbour), the Coffs Harbour and District LALC and the OEH Regional Office (Coffs Harbour) are all to be notified as soon as possible. If the remains are found to be of Aboriginal origin and the police do not wish to investigate the site for criminal activities, the Aboriginal community and the OEH should be consulted as to how the remains should be dealt with. Work may only resume after agreement is reached between all notified parties, provided it is in accordance with all parties' statutory obligations.

It is also recommended that in all dealings with Aboriginal human remains, the Proponent should use respectful language, bearing in mind that they are the remains of Aboriginal people rather than scientific specimens.

- It is recommended that if Aboriginal cultural materials are uncovered as a result of development activities within the Project Area, they are to be registered as Sites on the AHIMS, managed by the OEH. Any management outcomes for the site will be included in the information provided to the AHIMS.
- All effort must be taken to avoid any impacts on Aboriginal Cultural Heritage values at all stages during the development works. If impacts are unavoidable, mitigation measures should be negotiated between the Proponent, OEH and the Aboriginal community.

7.8 Non-Aboriginal Heritage

7.8.1 Existing Environment

Searches were conducted of the Australian Heritage Council database (which includes the World Heritage List, the National Heritage List, the Commonwealth Heritage list and the Register of the National Estate), the State Heritage Register, State Heritage Inventory and the Coffs Harbour LEP heritage listings (**Appendix I**). The site is not listed within any of the registers, and there are no heritage items within the vicinity of the site. The subject site is highly disturbed and developed.

7.8.2 Potential Impacts

The works area associated with the Proposal is highly modified and the Proposal is not considered to present risk to non-Aboriginal heritage. Unexpected finds procedures may be employed as a conservative measure regarding the uncovering of potential heritage items during ground disturbance activities.



The following safeguards will be implemented in order to manage potential non-Aboriginal heritage impacts:

- All construction personnel working on-site will receive training in their responsibilities under the *Heritage Act 1977*
- Should non-Aboriginal heritage items be uncovered during works, all works in the vicinity of the find will cease and the State Heritage Office and Coffs Harbour City Council will be contacted.

7.9 Noise and Vibration

ARUP were engaged by Health Infrastructure to assess impacts from construction and operational noise from the Proposal which is attached as **Appendix J**. This Construction and Operational Noise and Vibration Assessment:

- Describes the proposed development
- Assesses the existing noise environment
- Documents the likely construction and operational noise impacts of the Proposal
- Details protective/ mitigation measures to be implemented.

7.9.1 Surrounding Land Uses and Existing Noise Environment

ARUP have reviewed surrounding land uses and the existing noise environment. The site and location of works are sufficiently removed from surrounding residential development located approximately: 740 m to the north, 950 m to the south and one kilometre to the north-east. Therefore, no residential receiver locations have been considered in the assessment.

Four receiver locations, forming part of the existing CHHC are considered 'off-site' receiver locations for the purpose of the assessment. These results are as they are located outside the boundary of the subject site (i.e. Lot 205 DP1206854 and Lot 14 DP261222). It is noted that receiver location M1 is an accommodation facility (Shearwater Lodge) and will be assessed as a motel receiver type.

All other immediately surrounding premises consist of: industrial, commercial, environmental conservation or recreation zones. **Plate 7.6** taken from the noise and vibration assessment report, shows the development site within the context of the hospital campus and surrounding land uses/ receivers. The nearest potentially affected land uses (shown on **Plate 7.6**) individually identified within the Noise and Vibration Assessment at **Appendix J**.

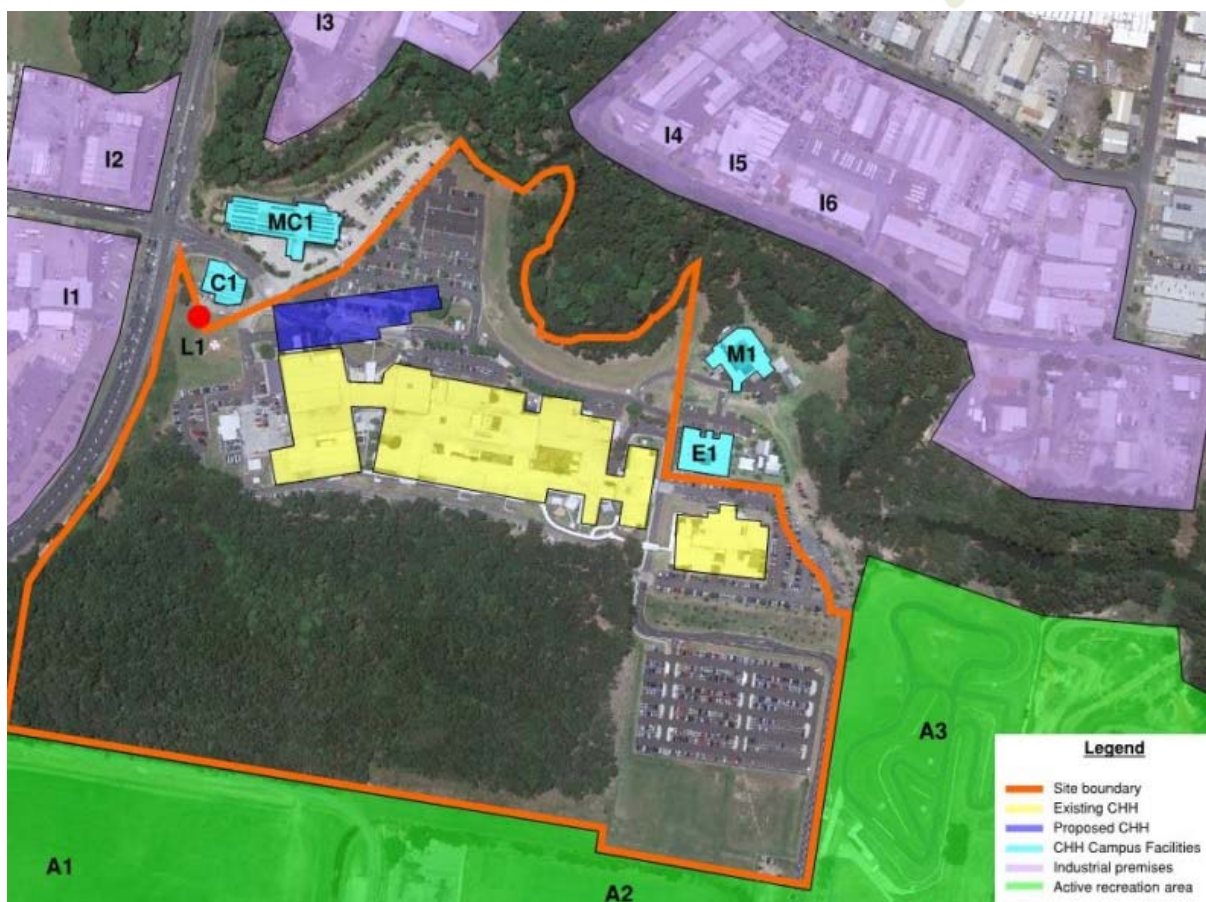


Plate 7-6 The site and receiver locations/ surrounding land use types

ARUP have undertaken measurements of the existing noise environment using noise loggers. To determine the background noise level of the area, the assessment conducted used long-term noise monitoring. **Plate 7.6** shows the long-term measurement location (L1).

Long-term noise monitoring was carried out from Thursday, 14 September to Tuesday, 26 September 2017. The long-term noise monitoring methodology and noise level-vs-time graphs of the data are included in Appendix B of the Noise and Vibration Assessment.

Table 7.7 presents the overall single Rating Background Levels (RBL) and representative ambient Leq noise levels for each assessment period, determined in accordance with the NSW *Noise Policy for Industry* (NPI).

Table 7-7 Long-term noise monitoring results, dB(A)

<i>Time Period</i>	<i>Rating Background Level RBL L_{A90}</i>	<i>Average L_{Aeq}</i>
Day ¹	51	67
Evening ²	49	63
Night ³	44	61

1. Day is 8:00am to 6:00pm on Sunday and 7:00am to 6:00pm at other times

2. Eve is 6:00pm to 10:00pm

3. Night is the remaining periods

7.9.2 Operational Noise Impacts

The ARUP Noise and Vibration Assessment outlines that the primary operational noise sources with the potential to impact upon surrounding noise sensitive receivers has been identified as the mechanical plant and equipment serving the development.

A number of additional operational noise sources (i.e. loading dock, bus stop and ambulance bay) have been identified, however these are not expected to adversely impact upon surrounding receivers.

Operational noise emission from the project has been assessed in accordance with the NPI, which is primarily concerned with controlling intrusive noise impacts in the short-term for residences, and maintaining long-term noise level amenity for residences and other land uses.

The intrusiveness criteria are applicable to residential premises only. Since no residential receivers have been identified as likely to be affected by impacts from the development, noise criteria are based on the amenity noise criteria.

NPI recommends 'acceptable' and 'recommended maximum' cumulative noise levels for all industrial noise at different receiver types, including residential, commercial, industrial receivers and other sensitive receivers. The project specific noise criteria for each considered receptor are summarised in the Noise and Vibration Assessment and reproduced in the **Table 7.8** below.

Table 7-8 NPI Project Noise Criteria

Receiver	Time Period	Project Goals. Recommended amenity noise level
M1 (amenity noise levels based on suburban residential amenity area)	Day	60
	Evening	50
	Night	45
E1	Nosiest 1-hour period when in use	35 (internal)
MC1	When in use	45 (internal) ¹
C1	When in use	65
I1-I6	When in use	70
A1-A3	When in use	55

1. In the absence of appropriate NSW NPI amenity noise criteria, this project goal has been obtained from AS2107:2016 – Health buildings – Consulting rooms (40 to 45).

The primary operational noise associated with the new hospital building relates to building services equipment, such as air-conditioning and ventilation systems. Building service equipment (e.g. mechanical, hydraulic and electrical equipment) for the development has not been selected at this stage of design. During ongoing design of the development, building services equipment will be selected and provided with noise and vibration attenuation measures as required to meet the project goals (recommended amenity noise levels). Where low noise equipment selection alone is insufficient, standard noise control methods can be adopted such as attenuators, acoustic louvres, acoustic screening around plant areas and use of sound absorptive treatments to screens and plant rooms.

Further detailed acoustic design will be required following confirmation of the building services equipment selections.



In terms of helicopter noise during operation, the Proposal involves relocation of the existing helipad to the roof of the proposed new hospital building. As per the AviPro aviation report (**Appendix W**) the typical helicopter 'noise' event includes the following components:

Helicopter arrival:

- one-minute approach and land
- two minutes engine idle.

Helicopter departure:

- one-minute start-up and hover
- one-minute departure.

Total elapsed noise event is approximately five minutes.

As helicopter noise has been present at the site for decades, this is considered to be an existing condition. The Proposal involves relocation of the helipad within approximately 100 m of its existing position and would be moved further to the centre of the overall health campus. Therefore, no notable change to helicopter noise conditions is expected and no further assessment warranted.

7.9.2.1 Summary

With regard to operations, the assessment concludes that the proposed expansion is capable of satisfying the standard NSW EPA noise policy requirements. Notwithstanding, further detailed acoustic assessment is warranted during the design development, particularly with regard to building services noise control.

7.9.3 Impacts Upon the Development

The site is located to the east of the Pacific Highway with the nearest carriageway being approximately 90 m from the nearest façade of the new building.

The ARUP Noise and Vibration Report notes that NSW Department of Planning and Environment's *Development in Rail Corridors and Busy Roads – Interim Guideline* is not relevant to this development on the basis that traffic volumes along the Pacific Highway through the Coffs Harbour CBD (2015) were recorded to be approximately 32,000 vehicles per day. This daily traffic volume does not trigger the need for assessment under the abovementioned interim guideline as daily traffic volumes do not exceed 40,000. In addition, the Coffs Harbour bypass will see a significant number of vehicles being removed from the existing corridor into which the hospital connects.

Notwithstanding, it is expected that during the detailed design of the building, noise intrusion from external sources, such as road traffic will be considered. Vibration impacts from vehicles travelling along the Pacific Highway are not expected to impact the development.

Long-term road traffic noise measurements were carried out approximately 20 m from the nearest carriageway of the Pacific Highway. It is noted that a ratio-of-distance adjustment to account for the difference in separation distance between the Pacific Highway, logger location and location of the new hospital building is required. However no significant road noise impact is expected. It is expected that road traffic noise will be satisfactorily addressed by the glazing strategy implemented in connection with the roof top HLS.



7.9.4 Construction Noise

7.9.4.1 Source Noise Levels and Construction

Indicative construction activity noise source levels have been assumed for the proposed construction works.

The following major construction activities have been considered:

- Site establishment works
- Construction of the new hospital building
- Refurbishment and works to existing hospital building.

Indicative plant/ equipment may include:

- Generators
- Trucks
- Hammers
- Hand tools
- Crane
- Concrete pump truck
- Removal of building waste.

7.9.4.2 Construction Hours

The construction duration is anticipated to be up to approximately 34 months (21 months for new building).

Construction hours, including those outside of the recommended standard hours are proposed as follows:

- Monday to Friday – 7.00 am to 6.00 pm
- Saturday – 7.00 am to 5.00 pm
- Sunday and public holidays – no work.

It is noted that the proposed Saturday construction hours extend beyond the recommended standard construction hours (i.e. 8.00 am to 1.00 pm) prescribed in the *Interim Construction Noise Guideline* (ICNG). However, justification for the extension is grounded on the absence of proximate residential receivers and the site being predominantly surrounding by less noise sensitive industrial, commercial and recreation zones.

In addition to the above construction hours, approval is sought for the following works which may be undertaken outside the standard construction hours and may occur on a 24-hour-a-day, seven-days-of-the-week basis.

- Internal refurbishment of the existing hospital building
- External/ internal services work such as gas/ communications/ water/ hydraulics/ mechanical/ power/ medical gas, services shutdowns, services retrofitting and commissioning
- Staging to facilitate construction of external roads (i.e. switch overs or obstructive work) and other tasks such as line marking may need to occur at night
- Wide load deliveries
- Completion of major concrete pours (where necessary)
- Site clean-up.



Works outside the recommended standard construction hours are not expected to occur on a regular basis, however the occasional need may arise. With consideration to the surrounding land uses - consisting predominantly of industrial, commercial, environmental conservation or recreation zones - potential noise impacts upon the surrounding area are low.

While four receiver locations (i.e. M1, E1, MC1 and C1), located on the CHHC, are expected to experience varying degrees of noise impact associated with some out-of-hours construction work, the implementation of feasible and reasonable mitigation measures (as outlined in the Noise and Vibration Assessment) would minimise any such impact.

7.9.4.3 Noise Management Levels

The ICNG sets out management levels for noise at sensitive receivers, and how they are to be applied. As there are no proximate residential receiver locations, management noise levels for other sensitive land uses have been presented and used (as outlined in Table 12 of the Noise and Vibration Assessment).

Recommended standard hours' management levels will apply for all considered receiver locations with the exception of M1 and E1 where an outside recommended standard hours' management level has been adopted and is set at 5 dB below the corresponding recommended standard hours' management level.

For work within standard construction hours, if after implementing all 'feasible and reasonable' noise levels the site still exceeds the noise affected level, the ICNG does not require any further action – since there is no further scope for noise mitigation.

Based on the ICNG guideline, Table 13 of the Noise and Vibration Assessment outlines the project specific targets for the surrounding receivers and construction noise management levels.

7.9.4.4 Construction Noise Impacts

The Noise and Vibration Assessment provides for a detailed assessment of construction noise impacts, including predictions and management criteria. It should be noted that in general construction works are temporary in nature and therefore any potential noise impact will not be permanent. However, where possible the impacts due to construction noise should be minimised.

The assessment undertaken emphasises that the magnitude is influenced by a number of factors and that predicted construction noise levels are generally conservative and do not represent a constant noise emission that would be experienced by the community on a daily basis throughout the project construction period.

The predicted construction noise levels are presented in Table 18 of the Noise and Vibration Assessment. Results show predicted construction noise levels at four receivers (M1, E1, MC1 & C1) exceed noise management levels by up to 26 dB.

The proposed main works are likely to result in exceedance of the relevant noise management levels at four assessment locations and accordingly mitigation and management procedures will need to be considered. However, the predicted exceedances are only expected during periods of intense activity subject to the type of equipment used.



Construction noise impacts at all other considered receiver locations are expected to comply. A detailed Construction Noise and Vibration Report for the project will be required, in which specific attention should be given to controlling noise impacts upon the abovementioned receiver locations. It is expected that the detailed Construction Noise and Vibration Management Plan would be prepared by the contractor prior to the commencement of works.

7.9.5 Vibration Impacts

Concerns regarding impacts on human occupants to buildings would generally be assessed in accordance with the 'intermittent' vibration criteria outlined in the DEC Guideline (Department of Environment and Conservation (NSW), 2006). However, due to the low vibration intensity works proposed, focus for management purposes is on structural damage.

Given that the Main Works are not expected to involve vibration intensive activities (i.e. rock breaking, pile driving, etc.) it is expected that the vibration impact to sensitive 'off-site' receivers will be negligible. ARUP have determined that a detailed Construction Noise and Vibration Report for the Main Works will be required at a later design Stage. Refer to **Appendix J** for further detail.

7.9.6 Noise and Vibration Mitigation

The Noise and Vibration Assessment outlines mitigation measures that considered to represent 'feasible and reasonable' mitigation measures suitable for implementation during construction of the project. These are summarised below:

The Noise and Vibration Assessment recommends that a Construction Noise and Vibration Management Plan be prepared prior to works commencing.

Noise and Vibration Assessment outlines that in general, practices to reduce construction noise impacts will be required, and may include:

- Adherence to the standard approved working hours as outlined in the Project Approval.
- Manage noise from construction work that might be undertaken outside the recommended standard hours.
- The location of stationary plant (concrete pumps, air-compressors, generators, etc.) as far away as possible from sensitive receivers.
- Using site sheds and other temporary structures or screens/ hoarding to limit noise exposure where possible.
- Sealing of openings in the building (temporary or permanent) prior to commencement of internal works to limit noise emission.
- The appropriate choice of low-noise construction equipment and/or methods
- Modifications to construction equipment or the construction methodology or programme. This may entail programming activities to occur concurrently where a noisy activity will mask a less noisy activity, or, at different times where more than one noisy activity will significantly increase the noise. The programming should also consider the location of the activities due to occur concurrently.
- Carry out consultation with the community and surrounding building owners/ occupants during construction including, but not limited to; advance notification of planned activities and expected disruption/ effects, construction noise complaints handling procedures. Of particular importance would be the Private Medical Centre, Ambulance Station, Shearwater lodge and UNSW rural clinical school.



The following noise mitigation work practices are recommended by the Noise and Vibration Assessment to be adopted at all times on-site:

- Regularly train workers and contractors (such as at toolbox talks) to use equipment in ways to minimise noise
- Site managers to periodically check the site and nearby residences for noise problems so that solutions can be quickly applied
- Avoid the use of radios or stereos outdoors
- Avoid the overuse of public address systems
- Avoid shouting, and minimise talking loudly and slamming vehicle doors
- Turn off all plant and equipment when not in use.

The Noise and Vibration Assessment also presents recommended minimum working distances for vibration intensive plant. With regard to the proposed development works, vibration is not expected to impact upon surrounding development.

7.10 Soils

7.10.1 Geotechnical Investigations

A Geotechnical investigation was undertaken by Coffey Geotechnics Australia Pty Ltd (refer to **Appendix L**) for the Proposal. The aim of the investigation was to assess the subsurface soil and groundwater conditions across the site in order to provide:

- An assessment of the geotechnical suitability of the site for the proposed development
- Recommendations on-site preparation and earthworks
- Recommendations on excavations and retaining structures
- Recommendations for temporary and permanent batter slopes
- Comments and recommendations on footing and settlement footing
- Recommendation on pavement design parameters (CBR values).

The geotechnical investigation consisted of a desktop analysis and drilling fourteen cored boreholes within the proposed work envelopes to depths of between eight metres and 26 m below existing ground surface level. Three hand auger boreholes were also undertaken to a maximum depth of 0.6 m depth until equipment refusal (refer to **Plate 7.7**).

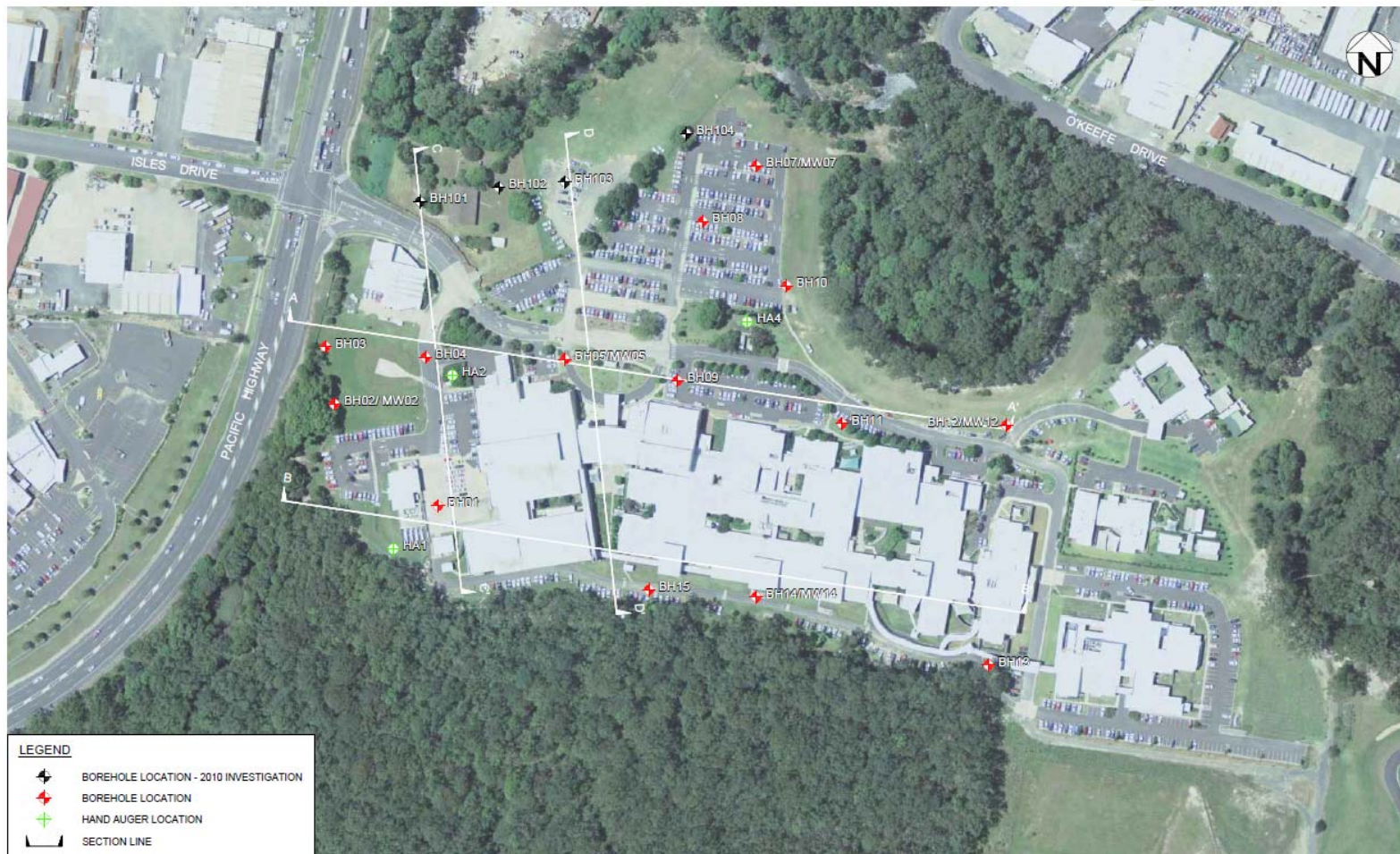


Plate 7-7 Location of the Geotechnical Investigations

Source: Coffey Geotechnical Investigation Report 2017



7.10.1.1 *Desktop analysis*

The 1:250,000 Geological Map of Dorrigo – Coffs Harbour Sheet 56-10 and part Sheet 56-11 First Edition 1971 indicates the site to be underlain by Quaternary aged alluvial, paludal and estuarine deposits, mainly comprising sands, silts and gravels. The Geology Map also indicates the site bedrock geology is Carboniferous aged Brooklana Formation which comprises siliceous argillite and slate.

More specifically the 1:100,000 and 1:25,000 Coffs Harbour Area Coastal Quaternary Geology Map indicates the site to be underlain by the boundary of Holocene aged floodplain under the northern half and a Pleistocene aged terrace on the southern half both comprising of silt, clay, fluvial sand and gravel.

7.10.1.2 *Subsurface conditions*

The subsurface geotechnical investigation undertaken by Coffey identifies the site to be underlain by Quaternary aged alluvial, paludal and estuarine deposits, mainly comprising sands, silts and gravels.

7.10.1.3 *Groundwater*

Groundwater was observed at depths less than six metres (generally 5.5 m) below the existing ground surface level across the site. Five monitoring wells were installed across the site. Groundwater levels may fluctuate after rain or because of other climatic events.

BH09 encountered a sand layer from 5.5 m to 8.5 m, which is likely to result in significant inflows for piles, basement and lift excavation to this level. Excavations to depths greater than 2.1 m may experience groundwater seepage in to the excavation. Due to the predominately clay subsurface conditions, it is anticipated that any groundwater seepage into the excavations will be controllable using conventional sump and pump techniques up to five metres in depth.

Where deep excavations (more than 2.1 m i.e. below the water table) are proposed, it may be necessary to carry out groundwater testing in order to determine the most suitable method of disposal if groundwater pumping and disposal is required during construction and on completion of the structure.

7.10.1.4 *Findings*

The primary geotechnical features of the site include:

- Alluvial floodplain geology – relatively variable foundation conditions with layers of clay, silt, sand and gravel;
- Deep bedrock with close defect spacing. The bedrock was encountered at depths between 7.15 m and 20.1 m below the existing ground surface. Although the rock strength is high, the number of defects will govern the bearing capacity.
- Areas with low CBR subgrade.



The Geotechnical Assessment identified that given the reactive nature of the alluvial subgrade materials, the site may become untrafficable when subject to excessive moisture. The Coffey assessment recommends that measures are required to improve site trafficability in and around the site during construction. Such measures may include maintenance of suitable cross-falls to reduce the potential for water to pond and the provision of a working platform comprising of suitable crushed rock or concrete.

The findings and recommendations of the report would be implemented prior to and during construction.

7.10.2 Acid Sulfate Soils

7.10.2.1 *Overview*

The site is located within land mapped as Class 1 and 3 (pursuant to CHCCLEP 2013). Department of Water and Conservation 1:25,000 Acid Sulfate Soil Risk Map, indicate the site is located in an area of low probability of acid sulfate soils (ASS) with the potential for ASS to occur from 1.0 to 3.0 mbgs where the site elevation is between two and four metres AHD. Coffey Geotechnics Australia Pty Ltd (Coffey) was engaged to investigate the potential for acid sulfate soils and prepare an Acid Sulfate Soils Management Plan (**Appendix M**).

To assess the potential for acid sulfate soils at the site, soil sampling was undertaken from 11 to 22 August 2017 as part of a contamination assessment by Coffey. Field pH screening was completed in accordance with Appendix 1 of the NSW ASSMAC (1998) Acid Sulfate Soil Manual (ASSMAC). Results of the pH screening were compared against Section 2.2 of the ASSMAC.

7.10.2.2 *Findings of acid sulfate soil investigation*

For the purpose of assessing the acid sulfate soil potential at the site, samples were collected from six boreholes (BH01, BH02, BH05, BH08, BH11, BH14) across the assessment area at regular depths (one test per 0.5m interval), to a total depth of 19.45 mbgs.

The ASS field screening results are included in the full assessment at **Appendix M** and the results are summarised below:

- Samples in a 1:5 mixture with distilled water ranged between 5.7 and 7.5 pH Units, ranging from slightly acidic to neutral. A pH less than or equal to 4 is likely to indicate the presence of Actual Acid Sulfate Soils (AASS)
- Samples in a 1:5 mixture with hydrogen peroxide ranged between 4.8 and 6.6 pH units. A final pH of less than 3.5 can be indicative of Potential Acid Sulfate Soils (PASS).

Based on results of the field screening, Coffey considered the potential for ASS as low and subsequent laboratory analysis was not considered necessary.

It was noted in their assessment that the samples were collected from boreholes excavated in higher elevations of the site. Based on the Acid sulfate soil risk map, the lower areas of the site below about two metres AHD, adjacent to Newports Creek have a low probability of ASS within one and three metres depth.



The ASS Management Plan outlines management principles and procedures that should be implemented in the event that suspected Acid Sulfate Soils are encountered during construction. Subject to this, no significant risk or impact related to Acid Sulfate Soils is likely.

7.10.3 Contamination

7.10.3.1 Overview

Coffey Geotechnics Australia Pty Ltd (Coffey) was engaged to investigate soil contamination in the proposed works footprint. Coffey carried out a Preliminary Contamination Assessment for the proposed redevelopment works. The Preliminary Contamination Assessment is attached as **Appendix K**. The objectives of the assessment were to:

- Investigate potential surface and subsurface contamination underlying the site to assess the suitability of the site for the proposed redevelopment
- Assess what remediation works, if any, may be required to make the site suitable for the proposed redevelopment.

The assessment involved:

- Desktop study, including previous site ownership, historical aerial photography, Section 149 planning certificates, hazardous material on-site search, EPA notices under the Contaminated Land Management Act (1997) as well as previous environmental assessment works
- Intrusive site investigation works (including drilling, sampling)
- Laboratory analysis of samples
- Interpretation of the data
- Assessment of the suitability of the site for the proposed redevelopment.

Plate 7.8 shows the location of the sampling regime across the site.

This report has been prepared in general accordance with industry and NSW EPA guidelines, particularly the *Guidelines for Consultants Reporting on Contaminated Sites* (NSW OEH, 2011), relevant sections of the *National Environment Protection (Assessment of Site Contamination) Measure 1999* (the ASC NEPM) (NEPC 1999, amended 2013) and State Environmental Planning Policy No. 55 Remediation of Land.



Plate 7-8 Sampling and Borehole Locations

Source: Coffey Contamination Assessment Report 2017



7.10.3.2 Findings of the contamination assessment

Results from the Preliminary Contamination Assessment indicated that:

- All samples collected during this investigation returned results below adopted ecological and health assessment criteria for commercial/ industrial land use. Sampling and analysis of the parts of the site with minimal potential for impact from previous use was sufficient to provide a representative assessment which was supplemented by judgemental sampling and analysis in areas where potential for impact was suspected
- Fill soils classify as General Solid Waste (GSW) under the six-step procedure documented within NSW EPA (2014) *Waste Classification Guidelines, Part 1: Classifying Waste*. A waste classification of GSW allows these soils to be reused on-site (subsequent to geotechnical classification) or exported off-site as GSW.

Based on the findings of the Preliminary Contamination Assessment the assessed areas are considered to be suitable for ongoing use as a hospital.

It is therefore concluded that a Remedial Action Plan is not required for the site based on the findings of the report contained at **Appendix K**.

7.10.3.3 Recommendations

Based on the findings, Coffey recommended a Construction Environmental Management Plan (CEMP) be prepared and that the contractor implement an unexpected finds procedure during earthworks and construction that is focussed on identifying and managing fibro fragments and other potential contamination sources of contamination.

Should hardstand surfaces in the near vicinity of the emergency shower be disturbed as part of any future redevelopment works, Coffey recommend that observation of the underlying soil material and holding tank be carried out.

7.10.4 Erosion and Sediment Control

Soil and erosion control procedures and devices will be required to be provided during construction. Controls are to be in line with relevant authorities and guidelines. Erosion and sediment control measures are to be implemented and maintained to:

- Prevent sediment moving off-site and sediment laden water entering any water course, drainage lines, or drain inlets
- Reduce water velocity and capture sediment on-site
- Minimise the amount of material transported from site to surrounding pavement surfaces
- Divert clean water around the site.

This would be in accordance with the Landcom/ Department of Housing Managing Urban Stormwater, Soils and Construction Guidelines (the Blue Book).

A Soil and Water Management Plan has been prepared for the project which is attached as part of the Civil Design report at **Appendix Q**. Given the features of the site and nature of the Proposal, soil and water can be effectively managed during the construction phase through the implementation of such plans and will ensure adequate protection of water sources.



7.11 Utilities and Services

A summary of utility and services requirements is provided in the following sections.

7.11.1 Hydraulic and Fire Services

Donnelly Simpson Cleary Consulting Engineers were engaged to prepare a Hydraulic and Fire Services Infrastructure Report. The report is at **Appendix O** and summarised in the following sections:

7.11.1.1 *General*

The CHH expansion consists of a new five level building, associated car parking areas and some refurbishment of the existing main hospital building and departments. The refurbishment of the existing areas associated within the hospital can be supported by the existing site services. The new building will have new services that are supplied or connected directly from the existing internal mains which will generally support the facility; however, a new connection to the Coffs Harbour City Council water main will be required to serve as a new incoming supply to the fire sprinkler system installed as part of the new building.

7.11.1.2 *Sanitary Plumbing and Drainage*

The existing piped sewer reticulation system drains to a sewer pumping station wet well located adjacent to the northeast corner of the existing building. The house service drainage has two main branches generally running parallel to the northern and southern elevations of the existing building. It is proposed the new multi-storey building will connect to the existing sewer drainage system, pumps and rising main. The refurbished areas will remain connected into the existing drainage system within the hospital site.

7.11.1.3 *Domestic Cold Water*

The site is fed from two 100 mm diameter incoming waters supplies connected to the Authorities' watermain located in the Pacific Highway. Potable water to the new building will be provided from the existing reticulated system. The existing system is located in-ground along the perimeter of the southern side of the new building. The system has been installed as a ring main with isolation valves throughout the ring main to enable the closure of sections of the main without disrupting the cold water supply to the whole facility. Isolation valves will be installed within the existing piped system to enable the new works to proceed with little disruption to the operation of the hospital.

7.11.1.4 *Gas Services*

The site is fed from an on-site Liquefied Petroleum Gas (LPG) storage tanks. The service is reticulated in-ground along the southern side of the new building. The system has not been installed as a ring main. The new building will connect to the existing gas service via a new connection to the regulated medium pressure service manifold located at the tank farm. The total capacity of the LPG system will compromise six LPG cylinders with a maximum capacity of approximately 45kL.



7.11.1.5 *Fire Fighting Services*

A new connection to the Coffs Harbour City Council water main will be required to serve as a new incoming supply to the fire sprinkler system installed as part of the new building.

The water main can provide reasonable flow rates and the pressures for domestic use; however, these rates are insufficient to meet the higher firefighting pressure and flow requirements, therefore pumps will be required for the fire and water services within the new building.

7.11.2 **Integrated Water Management Plan**

The Integrated Water Management Plan (IWMP) has been prepared by Donnelley Simpson Cleary Consulting Engineers and is provided at **Appendix Y**.

The IWMP addresses the measures that have been incorporated in the proposed development to reduce the overall water consumption and minimise the effects of the rainwater discharge from the site.

Overall:

- The use of water efficient tapware will provide some benefit in reducing the water consumption
- The recirculation of fire services water used in the monthly testing will be reduced
- Rainwater will not be harvested for this development as the new building footprint will be drained via external down pipes and gutter into the in-ground drainage. This will be designed in accordance with relevant standards.

7.11.3 **Electrical and Communications**

A Utilities Report has been prepared by ARUP for the Proposal. It assesses key utilities, with reference to power and communication services and is attached as **Appendix N**.

7.11.3.1 *Electrical*

The CHHC is supplied from the local Essential Energy network.

Coffs Harbour Hospital is supported by two dedicated substations:

- Essential Energy Substation 5-978247
 - Chamber Substation Type
 - Containing 2# 1500kVA Transformer
 - Full load dedicated to Coffs Harbour Hospital
 - Incoming consumer mains reticulate to adjacent LV Switchroom
- Essential Energy Substation 5-978254
 - Kiosk Substation Type
 - Containing 1# 1000kVA Transformer
 - Full load dedicated to Coffs Harbour Hospital
 - Incoming consumer mains reticulate to adjacent LV Switchroom.

The substations are supplied via a network of in-ground cables reticulated from the Pacific Highway across the site.



Essential Energy substations and in-ground cables reticulation paths attract an easement in favour of Essential Energy.

Other buildings across the campus are supported from separate Essential Energy substations including; Private Medical Centre, UNSW Rural School, Mental Health and Cancer Centre.

A Sewage Pumping Station (SPS) is positioned to the north-east of the site which supports the campus. This SPS is provided with a dedicated power supply from Essential Energy.

- Essential Energy Substation 5-971672
 - Pole Mounted Substation Type
 - Incoming consumer mains reticulate via In-ground conduits, upturning within the SPS Control Panel
 - Local utility metering within SPS Control Panel.

ARUP have undertaken a preliminary load assessment to assess the existing infrastructure's ability to support the Proposal. A new Essential Energy kiosk substation will be required to support the proposed new building which will consist of one 1500kVA transformer. The new kiosk substation requires a 7000 x 4200mm easement. To support this, Essential Energy in-ground cabling network and cabling infrastructure require augmentation.

All existing substations will be retained.

An Application for Connection has been submitted to Essential Energy and a Design Information Pack has been received allowing the augmentation of their network across the site to be designed.

7.11.4 Communications

The following communication service networks exist within or in proximity of the boundary of the development:

- NBN Co fibre
- Optus
- AARNet
- NextGen Networks (exists on campus, however outside of project boundary)
- Telstra (Limited to project boundary).

Mobile coverage is currently provided across the site from various service providers, however quality of service varies across the campus.

All existing communication services across the campus will be retained. New lead-in cable will be provided and in-ground lead-in conduits will reticulate to a new campus distributor.

7.11.5 Lighting

Due to the 24-hour operation of the use and the need to maintain safe access for staff and users, pedestrian paths and the entrance will be illuminated during the night. The design of external lighting would be carried out in accordance with AS 4282 - 1997 "Control of the obtrusive effects of outdoor lighting" in relation to the impact of obtrusive light. The standard is written to control both the levels of light and glare. It is not anticipated that the development will have any adverse lighting impacts.

7.12 Bush Fire Hazard Assessment

GeoLINK was engaged by Health Infrastructure to prepare a bush fire hazard assessment (refer **Appendix S**) for the Coffs Harbour Hospital expansion. The Proposal is declared State significant under Clause 8 of the *State Environmental Planning Policy (State and Regional Development) 2011*. Accordingly, the development requires preparation of an EIS and SEARS have been issued for the development in consultation with NSW Rural Fire Service (RFS). Pursuant to Section 4.41(1) of the EP&A Act, a bush fire safety authority under section 100B of the Rural Fires Act 1997 is not required. The Proposal is therefore not classified as Integrated Development. However, the bush fire assessment (**Appendix S**) has been prepared in accordance with the SEARs issued by DPE; including Clause 44 of the *Rural Fire Regulation 2013*, section 4.2.7 of *Planning for Bush Fire Protection 2006* and draft *Planning for Bush Fire Protection 2017* guidelines.

Coffs Harbour City Council's Bush fire Prone Lane (BPL) mapping has been prepared as a requirement of Section 10.3 of the EP&A Act 1979 and in accordance with the NSW Rural Fire Services 'Guideline to Bush Fire Prone Land Mapping'. Council's BPL mapping indicates that the site is classified as BPL (refer to **Figure 7.1**). The site is mapped as Category 1 and bush fire buffer in accordance with *NSW Rural Fire Services Guideline to Bush Fire Prone Land Mapping*. Coffs Harbour Council's LGA is located within the 'North Coast' fire area, with a Fire Danger Index (FDI) rating of 80.

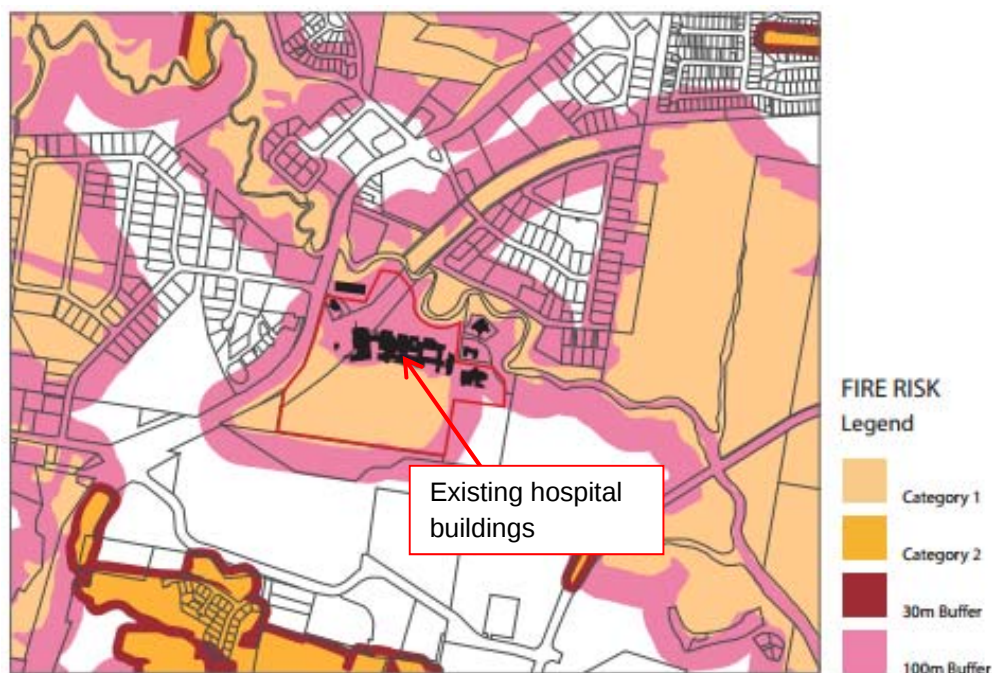


Figure 7.1 Coffs Harbour City Council's BPL Mapping

Orange: category 1 vegetation, pink: 100 m buffer to category 1 vegetation
(Source: Coffs Harbour City Council online mapping tool, accessed November 2017)

The site is flat and Swamp Mahogany Swamp Forest vegetation is the main form of vegetation at the site occurring within the north and south of the site. The Swamp Mahogany Swamp Forest vegetation is considered 'forest' vegetation under PBP 2006 and 'Forested wetlands Coastal swamp forest' under PBP 2017.

Areas of the site proposed to be developed are considered managed land consisting of buildings, parking, infrastructure, access, lawn and landscaping. The proposed development area and landscape/ vegetation context is shown at **Plate 7.9**.



Plate 7-9 Aerial image (Sixmaps 2017) showing vegetation within and adjoining the site. The development area is circled red (indicative).

Based on the effective slope, FDI rating and vegetation formations on the site, Asset Protection Zones (APZ) were assessed. As detailed in bush fire assessment report, the Proposal is able to accommodate acceptable solutions in regard to minimum APZ distances as required under Table A2.6 of PBP 2006 and Table A1.11.20 of PBP 2017 and therefore complies with the APZ requirement of each guideline.

The proposed Clinical Services Building is located approximately 6.3 m north of the main CHHC building. This location presents the best outcome regarding the building siting as the development is centrally located away from bush fire hazard vegetation across the site. The Bush Fire Assessment at **Appendix S** states that the proposed Clinical Services Building is able to achieve acceptable bush fire protection solutions detailed within PBP 2006 and draft PBP 2017.

The proposed Clinical Services Building will require a construction standard of BAL 12.5 AS-3959-2009 for the eastern orientated elevations of the building. The proposed Clinical Services Building would not trigger an upgrade of the existing CHHC façade under Part C of the BCA by maintaining a minimum six metre separation distance from the existing CHHC Building.



7.12.1 Bush Fire Assessment Recommendations

It is recommended that the following conditions be included in the approval for the SSD-8981 development:

- Asset protection zones:
 - Shall be established across the site in accordance with PBP 2017 Table A1.11.20 in relation to hazard vegetation adjoining Newport Creek.
 - The APZ shall be managed in accordance with the NSW RFS Standards for Asset Protection Zones and Appendix 4 of PBP 2017.
- Construction standards:
 - The Clinical Services Building will require a construction standard of BAL 12.5 AS-3959-2009 for the eastern orientated elevations of the new Clinical Services Building.
- Internal access:
 - Fire hydrants shall be located outside the internal road carriageway and parking areas and in accordance with AS 2419.1:2005.
- Services
 - All fire hydrant booster upgrades required for the development will comply with AS2419.1.
 - Fire hose reels will be constructed in accordance with AS/NZS 1221:1997 *Fire hose reels*, and installed in accordance with AS 2441:2005 *Installation of fire hose reels*.
 - All exposed water pipes external to the building shall be metal, including any fittings.
 - Electrical transmission lines supplying power to the Clinical Services Building will be located underground. Internal electrical systems will comply with the relevant BCA and Australian Standards.
 - Reticulated or bottled gas shall be installed and maintained in accordance with AS/NZS 1596:2014 and the requirements of relevant authorities, and only metal piping/ connections used.
 - Gas cylinders shall be located a minimum 10 m from flammable material and safety valves will be directed away from the building and a minimum two metres from combustible material.
 - Above-ground gas service pipes external to the building shall be metal, including and up to any outlets.
- Bush fire emergency and evacuation planning
 - A bush fire emergency and evacuation shall be prepared for the site as part of the development. The plan shall be prepared in accordance with:
 - The NSW RFS document: A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan.
 - Australian Standard AS 3745:2010 Planning for emergencies in facilities.
 - Australian Standard AS 4083:2010 Planning for emergencies - Health care facilities (where applicable).
 - The plan shall identify mechanisms for the early relocation of occupants.
 - A copy of the bush fire emergency management plan should be provided to the Local Emergency Management Committee for its information prior to occupation of the development.



7.13 Flooding

The site is affected by flooding. Bonacci have been engaged to provide engineering services, including consideration of flooding. Their Civil Design Report and flood assessment are at **Appendix Q** and **Appendix T** respectively, with the following findings:

- The site is affected by flooding. Flood levels fall from the west of the site to the east of the site. Existing flood levels have been obtained from the Boambee Newports Creek Floodplain Risk Management Study (prepared for Coffs Harbour City Council by GHD July 2016).
- The identified 1% Annual Exceedance Probability (AEP) flood level at the west of the CHHC is approximately RL 5.6 m AHD and approximately RL 3.7 m AHD at the east of the CHHC. The identified 1% AEP flood level at the existing building entrances is approximately RL 5.5 m AHD. The existing hospital building floor level is RL 5.6 m AHD. It is noted that the existing hospital has been subject to flooding in the past 10 years.
- The PMF level varies across the site from approximately 5.9 – 6.25m AHD. The proposed new building will be protected to the Probable Maximum Flood (PMF) level, by ensuring that entrances are located where the ground floor level is at or above the PMF level, or protected from the PMF level by road kerbs or other measures. Design of the building fabric is to consider that flood levels may be higher than the exterior ground level adjacent to the new building. The ground floor level of the new building will be set at RL 5.9 m AHD. A number of parameters were assessed when setting the ground floor level of the new Clinical Services Building, including:
 - The PMF level
 - Hospital operational requirements
 - Future ground floor expansion within the building footprint of the new Clinical Services Building
 - Existing building levels at ground floor and Level 1
 - Required floor to floor and ceiling height at ground floor footprint of the new Clinical Services Building.
- The existing TUFLOW model was obtained from Coffs Harbour City Council. The proposed building was input to the model as a blockage, to allow assessment of the impact upon flood levels.
- Flood afflux diagrams were produced. They are attached to the flood report, and indicate that the proposed new building has a minor impact on surrounding flood levels. The increase in flood levels in the 1% AEP event is less than 20 mm as shown in Figure 5.
- Flood hazard classification for the hospital campus is noted as low (refer Provisional Hydraulic Hazard 1% AEP Map Appendix B.H.1 produced by GHD).
- Climate change was considered in the Boambee Newports Creek Floodplain Risk Management Study (prepared for Coffs Harbour City Council by GHD July 2016) – refer section 2.1.5 of the study. Generally, flood levels increased with increased rainfall and sea level (up to 0.5m increase for 30 per cent rainfall increase and up to 0.63 m increase for sea level rise in Boambee Creek upstream of Hogbin Drive).

In terms of access, the Pacific Highway is also affected by flooding, and is inundated in the 1% Annual Exceedance Interval (AEP) event. This prevents vehicular access to the hospital during large flood events. Council have developed a regional strategy for flood mitigation works. Once implemented, the hospital campus will be accessible in the 1% AEP flood event. Until those works are completed the current flood action plan for the hospital will need to be implemented for major storm events.



7.14 Drainage and Stormwater

Bonacci Group Pty Ltd were engaged by Health Infrastructure to prepare a Civil Design report and assessment of drainage and stormwater matters within the site and to prepare a flood/ stormwater drainage assessment, and stormwater plan. These assessments and plans are included within the Civil Design report (refer **Appendix Q**).

7.14.1 Existing Site Conditions

The CHHC site generally slopes to the north and north-east to Newports Creek. The existing buildings generally drain to the campus stormwater network that ultimately discharges to Newports Creek. In major storm events, the campus floods.

The CHHC is a large site and includes large areas of impervious and pervious surfaces across the site. Impervious areas are concentrated along the centre of the site, and to the northwest and southeast carparking areas. The presence of pervious surfaces amongst the main built form present on-site is limited, with the main pervious areas being open space to the north and south of the main hospital building and carparking/ road infrastructure.

7.14.2 Catchment Delineation

The proposed development is located within the CHHC site and within Boambee Newports Creek floodplain. The proposed development site is approximately 0.669 ha for the new building and the new western carpark. The hospital campus drains to Newports Creek to the north and a vegetated area to the south. A portion of the western carpark drains to the proposed drainage network and the remaining portion drains to the southern bushland area.

It is proposed to drain the new building to newly constructed street drainage to the north and south. The building drainage infrastructure will connect to the existing stormwater network, to the north and south of the development.

7.14.3 Water Quantity

Bonacci Group reviewed water quantity, including hydrology, hydraulics and permissible site discharge (PSD) as part of the stormwater assessment.

The CHHC is a large site and includes large areas of impervious and pervious surfaces across the campus. Impervious areas include existing buildings, roads, carparks, paths and associated infrastructure. Pervious surfaces amongst the main built form present on-site are limited, with the main pervious areas being open/ vegetated areas to the north and south of the main hospital building and carpark/ road infrastructure.

Bonacci Group have outlined that restricting the quantity of stormwater discharge is not possible without on-site detention (OSD) systems. However, the proposed development is located in the Boambee Newports Creek floodplain and is flood prone. Therefore, OSD would be ineffective.

The proposed new Clinical Services Building is to be constructed over an already highly developed and impervious area of the health campus. The area that will accommodate the new building currently consists of carparking, internal road ways, hardstand areas and small patches of garden/ maintained grass. This footprint is currently approximately 84 per cent impervious. The proposed Clinical Services Building will result in a new building with 100 per cent impervious surface across this area. Bonacci have assessed the quantity of additional stormwater generated to be negligible, as the existing and



proposed impervious surface areas are very similar. The overall CHHC redevelopment will generally maintain the existing pervious to impervious ratio (that is, there will be no appreciable increase in impervious area due to the redevelopment of the CHHC, as there will be new pervious areas constructed as part of the roadworks that offset the loss of pervious areas due to the Clinical Services Building construction). Overall, the proposed expansion would have a negligible impact on the level of pervious surfaces present within the broader campus area.

Regarding the quantity of the stormwater generated from the new western carpark, run off quantity will, in general, not cause an appreciable increase in flow as some storage is provided in the bioretention basins. There will not be an increase in flows due to the carpark development for the nine hour catchment wide critical storm duration. Additionally, run-off will have an opportunity to infiltrate into pervious areas such as the southern bushland area (where runoff is directed in both the existing and design scenario) and vegetated bioretention areas.

The PSD for the proposed development area within the campus is limited to the existing discharge from the existing buildings and associated infrastructure. The critical storm duration for the entire catchment (1% AEP event) is nine hours. Providing detention at the site to limit flows for this event is not necessary, as there is no increase in flow from the site (for the nine hour event) due to the redevelopment. There will be negligible change in flows during shorter storm events – the existing informal detention area is maintained to provide opportunity for infiltration of stormwater flows.

The Civil Design report outlines that the stormwater drainage systems have been designed to cater for design storms up to and including 100 year ARI (1% AEP) storm events in accordance with Coffs Harbour City Council's DCP. Given the current condition of the site, flood prone setting and negligible change to impervious surface area and runoff, the proposed expansion is not expected to result in any significant additional stormwater discharge and the stormwater drainage system will satisfactorily support the Proposal in terms of discharge quantity.

7.14.4 Water Quality

The Civil Design report and Water Source considerations by Bonacci Group (**Appendix Q and U**) provides an assessment of water quality relating to the proposed development.

The new building will be located approximately 85 m (at minimum) from the surveyed top of bank of Newports Creek. The proposed development therefore does not encroach on waterfront land.

The existing CHHC site does not currently have any stormwater quality treatment measures installed. The proposed development provides water quality measures specifically for the new building and associated infrastructure. The water quality discharge measure for the proposed new Clinical Services Building is designed to minimise water pollutant runoff and loads. Therefore, a neutral or beneficial (NorBE) criteria is adopted for this development.

The water quality strategy for the new building incorporates a Purceptor (SPEL) model P050 to treat stormwater runoff (potentially from a fuel/oil spill) from the new helipad. The proposed western carpark is to be treated by two separate bioretention areas. A portion of the western carpark (eastern side of the carpark) drains into a bioretention basin and the remaining portion (western side of the carpark) into a bioretention swale.

The water quality strategy for the proposed site was established using *MUSIC* [Version 6.2] model and relevant Coffs Harbour rainfall and evapotranspiration data. The overall development was modelled and as the runoff from the western portion of the western carpark is directed to a downstream bushland area which has been declared a coastal wetland, a *MUSIC* model has been run specifically

for the western carpark to assess the water quality from associated runoff (refer to Civil Design report for schematic diagrams of *MUSIC* modelling).

Modelling detail is provided in the Civil Design report, however in summary the results of *MUSIC* modelling show the proposed development achieves a pollutant reduction compared to the existing conditions. The comparison of pre- and post-development actual pollutant loads is clearly shown in the Residual Load column of the treatment train effectiveness model results (see **Figure 7.2**).

The *MUSIC* results in **Figure 7.2** demonstrate an improvement to the existing stormwater drainage system by reducing stormwater pollution and improving the overall water quality for the site. The results demonstrate that the NorBE criteria have been met. Pollutants from post-development node are less than pollutants from pre-development node.

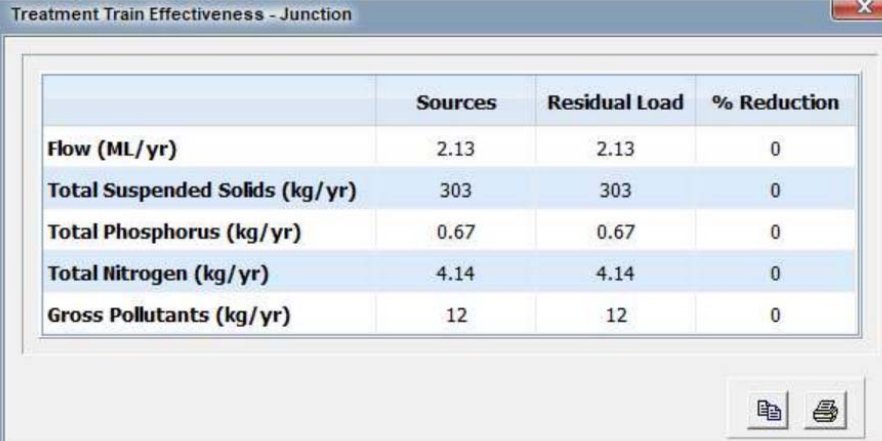


	Sources		Residual Load		% Reduction	
	Pre	Post	Pre	Post	Pre	Post
Flow (ML/yr)	7.33	10.1	7.33	9.77	0	3.27
Total Suspended Solids (kg/yr)	2350	1970	2350	178	0	91
Total Phosphorus (kg/yr)	3.93	3.81	3.93	1.47	0	61.4
Total Nitrogen (kg/yr)	14.9	21.2	14.9	14.8	0	30.2
Gross Pollutants (kg/yr)	132	231	132	100	0	56.7

☒ Include Pre-Development

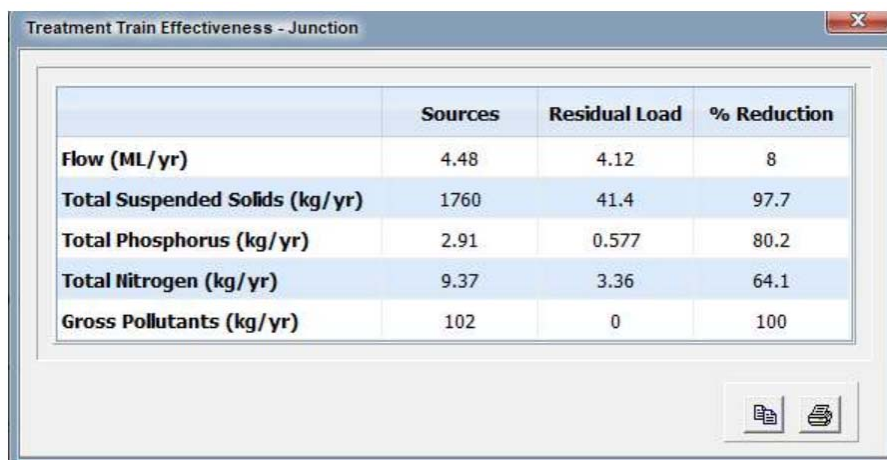
Figure 7.2 Overall MUSIC Model Results (Bonacci 2018)

The results from running the *MUSIC* model specifically for the proposed western carpark (to be built over the existing helipad area and surrounding grass area) is shown at **Figure 7.4**. This shows that the carpark, after treatment through bioretention systems, produces less pollutant load than the existing helipad (results at **Figure 7.3**) and thus meets the NorBE criteria.



	Sources	Residual Load	% Reduction
Flow (ML/yr)	2.13	2.13	0
Total Suspended Solids (kg/yr)	303	303	0
Total Phosphorus (kg/yr)	0.67	0.67	0
Total Nitrogen (kg/yr)	4.14	4.14	0
Gross Pollutants (kg/yr)	12	12	0

Figure 7.3 MUSIC Model Results for Existing Helipad (Bonacci 2018)



	Sources	Residual Load	% Reduction
Flow (ML/yr)	4.48	4.12	8
Total Suspended Solids (kg/yr)	1760	41.4	97.7
Total Phosphorus (kg/yr)	2.91	0.577	80.2
Total Nitrogen (kg/yr)	9.37	3.36	64.1
Gross Pollutants (kg/yr)	102	0	100

Figure 7.4 MUSIC Model Results for Proposed Western Carpark (Bonacci 2018)

The report by Bonacci Group concludes that the development satisfies the Coffs Harbour City Council DCP, Australian Rainfall and Runoff, Australian Runoff Quality – a Guide to Water Sensitive Urban Design, Australian Standard AS3500, all other relevant Australian Standards and best-practice principles.

The MUSIC water quality modelling has determined that the proposed development generates a lesser pollutant load compared to the existing site conditions. The assessment demonstrates that it improves the existing stormwater drainage system by significantly reducing stormwater pollution and improving the overall water quality for the site. The quantity of stormwater generated will have negligible change, as the existing and proposed impervious surface areas are similar. On this basis the Proposal achieves satisfactory stormwater outcomes by meeting the standard of having a 'neutral or beneficial effect' and is acceptable.

7.14.5 Water Sources and Resources

Bonacci Group provided consideration of water sources at **Appendix U**.

The assessment confirmed that it is not anticipated that the development will have an impact on groundwater (no basements are proposed, with excavation limited to the lift core – approximately 2.5 m below existing surface). The groundwater level was noted as approximately 5.5 m below the existing surface in the geotechnical report (Coffey, 26 October 2017).

As the development does not encroach on waterfront land (the new building is located at a minimum of approximately 85 m from the surveyed top of bank location of Newports Creek) and given the unlikely impact to water sources with appropriate management measures and safeguards, it is not proposed to provide water monitoring for the project, other than that required as part of soil and water management measures during construction (as identified in Bonacci Civil Drawings 1006401C-SD-CV-00031, 1006401C-SD-CV-00032 and 1006401C-SD-CV-00035). The Soil and Water Management Plan will be implemented during construction to ensure adequate management and protection of water sources.



7.15 Waste

A Waste Management Plan (WMP) has been prepared by Coffey Geotechnics Australia Pty Ltd (refer **Appendix Y**) for the construction and operation of the proposed hospital expansion.

7.15.1 Construction Waste

The nature of the proposed works will result in the following waste during the construction phase:

- Sediment spoils from earthworks
- Vegetation waste from tree removal
- Demolition waste including hazardous materials
- Construction and building waste
- Packaging and general waste.

The WMP (**Appendix Y**) has been prepared in accordance with the EPA's "Waste Classification Guidelines (2008)" and the *Protection of the Environment Operations Act 1997*. The WMP estimates volumes of waste to be generated during construction of the hospital expansion. Management and disposal methods are also detailed for each waste type. This includes the following summary of management themes:

- Waste avoidance and reduction
- Waste reuse and recycling
- Waste handling and storage
- Waste tracking and disposal.

A detailed construction WMP will be developed by the Contractor as part of the Construction Environmental Management Plan (CEMP) for the CHH expansion. The plan will provide further details of the management requirements for expected waste types.

7.15.2 Operational Waste

The WMP (**Appendix Y**) outlines how waste generated from the operation of the hospital expansion will be dealt with.

The waste streams likely to be generated during operation are detailed in the WMP. No waste streams will be generated that are not already produced by the CHHC. Confirmation of classification and quantities of potential waste streams will be conducted prior to the opening of the expansion, to ensure proper management and disposal methods are in place relevant to each waste type.

Expected operational waste includes:

- Clinical waste
- Pharmaceutical waste
- Sharps
- Anatomical waste
- Recyclable products
- Organic products
- Liquid waste
- Sterilised wastes
- Hazardous substances and dangerous goods
- General waste.



Measures to manage, reuse, recycle, transport and safely dispose of waste generated will be implemented in accordance with the hospital's existing WMP. The WMP prepared for this Project is able to be used as a guide when the hospital reviews their existing WMP.

All waste will be disposed of in strict compliance with the applicable Waste Management Guidelines for Health Facilities.

7.16 Building Code of Australia

A BCA 2016 Design Compliance Report was prepared for the Proposal by Blackkett Maguire and Goldsmith (BMG) and is attached as **Appendix V**. The report outlines key BCA 2016 compliance matters pertaining to the design of the CHH expansion including:

- Fire separation and compartmentation between new and existing buildings
- Egress strategy
- Fire services and equipment
- Fire engineering strategy
- Essential fire safety measures
- Access requirements for people with disabilities
- Sanitary facilities
- Energy efficiency.

The BCA Design Compliance Report determined that the project design can readily satisfy the requirements of the Building Code of Australia 2016. The documentation will need further detailing such as architectural design specifications, service design, etc. However, compliance matters raised can be readily addressed as part of the detailed design and documentation phase without causing any inconsistency with the approved SSD documentation.

7.17 Structural Design

Bonacci Group were engaged by Health Infrastructure to prepare a Structural Report which is attached as **Appendix R**). The following presents the summary of this report.

A new Clinical Services Building, which is proposed to be a multi-storey concrete framed building is to be constructed to the north of the existing hospital building. The structure will be designed to accommodate a new helicopter landing site (HLS) located on the roof and suspended links back to the existing building. The existing hospital building to the south comprises single or two storey elements that are concrete framed and/or steel framed.

The column grid for the new structure is generally in accordance with the Health Infrastructure (HI) guidelines, spaced at 8.4 metres in each direction. The columns are to be supported via piles embedded into rock.

The floor slabs are proposed to be post-tensioned banded slabs with the bands orientated to suit the reticulation of major ductwork where possible. On Level 1, a post tensioned flat slab is proposed as a result of the reduced storey height at ground level. The floors have been designed to accommodate all the design requirements in the HI guidelines with respect to vibration performance and future flexibility (creation of set downs and additional risers adjacent to columns). No vertical expansion has been allowed for in the design, however future expansion spaces and zones for future lateral expansion have been identified.

Lateral loads are to be resisted by in situ concrete shear walls. The structure is considered to be Importance Level 4 for the determination of design return periods.



*Refurbishments works will also be carried out to the existing hospital “Main Building A”, comprising ED, CSSD, Kitchen, Cath Lab and Mortuary zones (and the refurbishment of other parts of the existing hospital to realign service roles as outlined in **Section 3.1**). The structural works are limited to ground slab trenching for service reticulation, as well as steel column and wall bracing relocation on the upper level. Some penetrations will also be required through the suspended slab for services.*

7.18 Accessibility

Blackkett Maguire and Goldsmith have undertaken a review of the architectural documentation against the Building Code of Australia 2016 and Access to Premises Standard 2010. The accessibility assessment form is attached as **Appendix V**. The report provides advice ensuring compliance with the Building Code of Australia 2016 and Access to Premises Standard 2010. The report confirms that the CHH expansion satisfies the requirements in terms of access and facilities for people with disabilities and the Disability Discrimination Act 1992 (DDA). Overall, the comments indicate the Proposal is capable of satisfying the requirements of the aforementioned legislation and standards.

7.19 Construction Management Plan

PricewaterhouseCopper (PwC) have prepared an outline Construction Management Plan (CMP) as part of the CHH expansion SSD application (**Appendix W**). The outline Construction Management Plan will be replaced by the contractor’s Construction Management Plan once appointed.

The objective of the outline CMP is to outline parameters for site management practices during construction and is intended to provide sufficient information to support the SSD Application, prior to engagement of a suitably qualified and experienced contractor. The outline CMP details the management practices relating to and covers the following areas of management:

- The operations of site management when undertaking the works:
 - Legislative requirements
 - Hours of construction works
 - Public and property protection
 - Disruption and notices
- Mitigation to minimise amenity and environmental impacts:
 - Noise
 - Vibration management
 - Dust Management
 - Odour control
 - Protection of trees
 - Stormwater management and soil erosion
- Traffic/ pedestrian management during the works
- Waste management:
 - Construction
 - Storage of dangerous goods
 - Hazardous materials management
- Services disconnections.



The report states that it will be the responsibility of the selected contractor to prepare a detailed CMP. This would be in accordance with the Development Consent, receive authority approval and be implemented prior to construction commences.

7.20 Environmental Amenity

Visual amenity, noise and air quality have previously been assessed throughout this EIS (and appended specialist reports) and with implementation of safeguards and mitigation measures no significant impacts are likely.

The potential impact to views and visual amenity has been considered as part of the visual impact in **Section 7.3** of this EIS. Given the site's and surrounding land use context, as well as the presence of vegetation around the site, there would be no adverse impact to or loss of views or vistas.

In terms of other potential amenity impacts such as overshadowing (see shadow diagrams provided as part of the plan package at **Appendix B**), privacy, solar access and building material reflectivity, given the context of the site and substantial distance to residential areas/ developments (with the nearest being approximately 700 m to the north, 950 m to the south and one kilometre to the north-east), the development would not adversely impact residential amenity.

Given the large and relatively open nature of the site, separation between other built form, and the medium-rise scale of the proposed building (at five storeys, with a helipad and lift overrun), no adverse wind effects (e.g. wind tunnels) are likely.

In terms of environmental amenity and avoiding or minimising off-site impacts to other land uses, particularly more sensitive uses such as dwellings, the site's context is ideal. The existing CHHC is large and clearly separated from other land uses and distant from sensitive uses such as residential areas. The siting of the proposed new building does not have any sensitive interface and would effectively integrate into the CHHC site. This ensures that any potential amenity related impacts are not just minimised, but rather they would not eventuate in the first instance and no detriment to environmental amenity, including residential land uses, would result.

7.21 Socio-economic

The CHHC was built in 2001 and capacity is insufficient to meet the current and projected population needs. Coffs Harbour is a designated Regional City and the Mid North Coast has seen some of the fastest rates of population growth and ageing in NSW over the past 15 years. This has significantly increased the demand for acute, sub-acute and ambulatory health services. The proposed CHH expansion will result in much needed expansion to and improvement in facilities at the CHHC.

An options analysis was undertaken and the most suitable and best value for money option was selected. Based on service prioritisation, and cost benefit analysis, this business case recommended the preferred project option which is now the subject of this application. While the selected option does not meet the full suite of services under the Clinical Services Plan, it represents the best value for money as it includes a combination of new facilities, refurbishment of existing areas, and alternative storage considerations to effectively and efficiently meet the future needs of patients and staff.



The option selected and the final Proposal is considered to:

- Deliver the best outcome against relevant evaluation criteria as well as providing best value for money
- Provides the best balance of outcomes based upon analysis of alternatives
- Provides for future opportunities and additional expansion.

The Proposal will also inject a significant capital investment into the Coffs Harbour area and greater region which will stimulate direct and indirect employment as a result of the employment of contractors during the construction works and operational employment opportunities.

Indicative construction jobs to be created during the construction of the Proposal will be approximately 290 construction jobs. This will be of stimulus to the local and regional economy, both directly and indirectly.

Operation of the extension to the hospital will also generate additional health care and related jobs. Based on full time equivalent (FTE) job growth projections associated with the hospital once the expansion becomes operational, between 132 and 333 additional FTE jobs would be created at the CHHC between 2021 and 2026. This would provide for valuable long-term employment opportunities for people within the region and support other economic multiplier effects that will be of benefit.

The CHH expansion is unlikely to have any adverse socio-economic impacts, in terms of interrelated socio-economic, amenity and environmental impacts as assessed throughout this EIS.

The expansion will deliver increased capacity and improved health care services as well as contemporary facilities for the local and regional community. It will support current demands, along with future population growth and an ageing demographic. Quality health services are a highly valued and relied upon community asset, and are particularly important and valued within a regional context. The Proposal will be of substantial socio-economic benefit in terms of capital investment, short and long-term (on-going) employment, and the provision of important high-standard health services for the region.

Overall, the Proposal would result in substantial socio-economic benefits.

7.22 Aviation Assessment and Protected Airspace

AviPro (a division of Resolution Response Pty Ltd) were engaged to assess the Proposal with regards to protected airspace and vertical obstructions (refer to **Appendix X** for full report).

The proposed development is located in close proximity to Coffs Harbour Regional Airport (CHRA). As a consequence, the development of the hospital, and in particular vertical obstructions such as cranes, needs to be considered. This is a safety to flight requirement for aircraft approaching to, operating from, or departing CHRA.

The report identifies a number of existing tall obstructions in the surrounding area. These obstructions effectively determine the lowest level an aeroplane using CHRA can fly in poor weather. It also provides an indication of the heights that any cranes used in the development must be below.

The CHRA has an Inner Horizontal Surface limit of RL 48.06 m AHD that preserve the protected airspace. The report states that the proposed structure will stand at approximately RL 33.05 m AHD (architectural elevations show a maximum height of 27.7m from the ground floor level). This leaves approximately 15.1m for crane extension above the construction which will need to be managed. The proposed development and new facility will not penetrate any of the surrounding airspaces.

The determination as to how high cranes will be permitted will need to be made by Airservices. Tall cranes will impact the operations of CHRA to some extent. Therefore, the lower the crane obstruction, the less constraints can be expected from Airservices. Tall cranes will impact two aspects of instrument flying at CHRA. They are:

- Circling minima
- Instrument approaches

Although it is not expected that cranes will penetrate the lower level of protected airspace, an application for a Temporary Obstacle Intrusion Notification would need to be submitted to the CHRA Manager as required.

The report also refers to matters regarding helicopter landing sites (HLSs), with the Proposal incorporating such a feature on top of the proposed built form. Currently within Australia, there are no set rules or regulations applicable to the design, construction or placement of HLSs. There may however be local land use planning, location and movement approvals required. The report outlines various advisory material, guidelines and best practice standards that can be applied to HLS development, including the NSW Ministry of Health Guidelines for Hospital Helicopter Landing Sites in NSW. Refer to **Appendix X** for details.

The Aviation assessment also considers the HLS and planned/ preferred flight paths. These are shown at **Plate 7.10**. The proposed flight path directions are similar to the existing flight paths used for the CHHC on-grade HLS and have been assessed by AviPro.

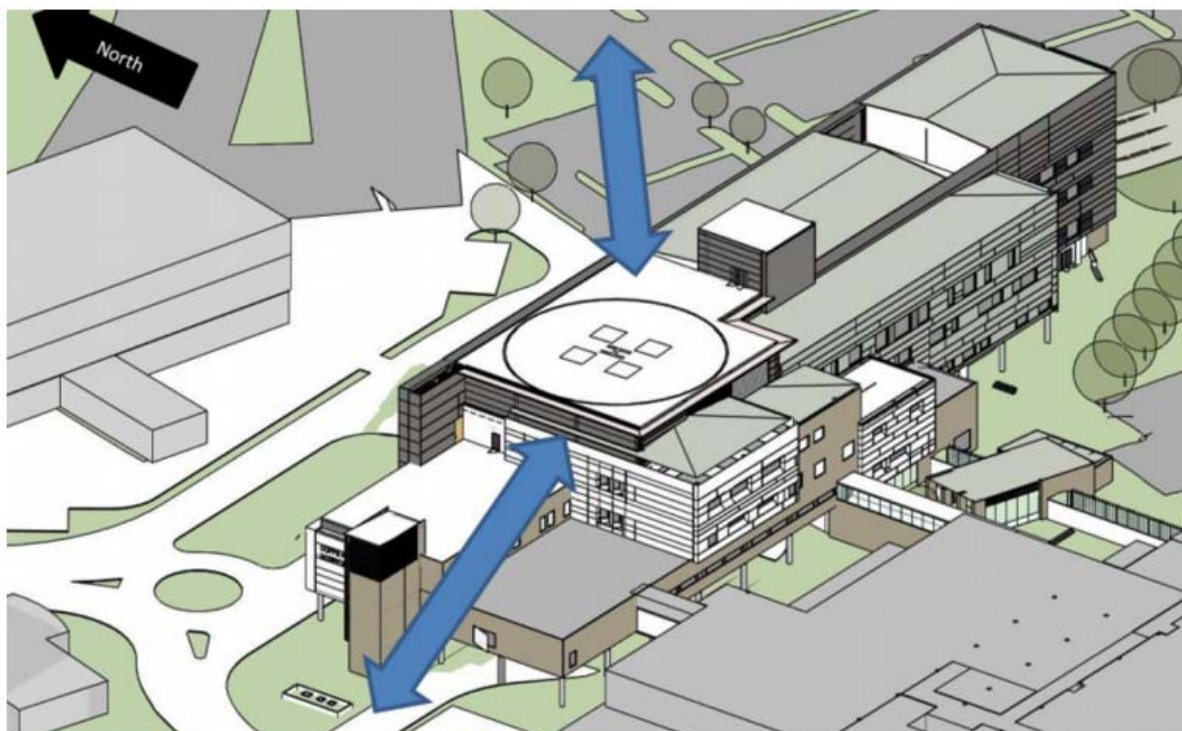


Plate 7-10 Flight path illustration for new building and HLS (AviPro 2018)



In summary:

- The vertical limit applicable to the site that preserves protected airspace is 48.06 m AHD.
- The proposed development/ structure will stand just above approximately RL 33 m AHD (see architectural plans for dimensions and RLs). This leaves approximately 15m for crane extension above the construction which will need to be managed.
- An application will need to be submitted together with appropriate drawings and designs to CHRA Manager for approval as required.
- Planned flight paths essentially replicate the existing flight paths to the on-grade HLS at CHHC.

7.23 Cumulative Impacts

The Proposal is considered to be an appropriate and effective use of existing NSW Health Land. The existing CHHC has the capacity to accommodate the expansion and result in minimal social or environmental impact. The site is well serviced by existing utilities and infrastructure, and with some relatively minor rearrangements and augmentation, these would be adequate to service the Proposal.

Based on a high-level review, there are no planned or approved developments within proximity to this development that would result in significant implications in regard to traffic (considered as part of the Traffic Impact Assessment at **Appendix F**), infrastructure services and environmental impacts. There were also no specific cumulative impact matters raised in the SEAR's response. Construction of the Coffs Harbour bypass is also expected to remove a lot of traffic from the existing Pacific Highway, which will see improvements along this section of road and the intersection adjacent to the CHHC.

It is expected that the Proposal may add to a number of cumulative impacts including resource consumption (e.g. construction material) and generation of greenhouse gas emissions (e.g. through operation of vehicles and equipment and use of electricity). However, the environmental management measures identified within **Section 9** and the choice of methodology for completion of the Proposal aim to minimise the extent to which the Proposal contributes to cumulative adverse environmental impacts in the locality.

Overall, the Proposal makes efficient use of existing infill land, will have socio-economic benefits for the community and can be undertaken with minimal environmental impact.



8. Environmental Risk Assessment

The SEARs state that the EIS must include an environmental risk assessment to identify the potential environmental impacts associated with the development. Where relevant, the assessment of key issues below, and any other significant issues identified in the risk assessment, must include:

- Adequate baseline data
- Consideration of the potential cumulative impacts due to other developments in the vicinity (completed, underway or proposed)
- Measures to avoid, minimise, and if necessary, offset predicted impacts, including detailed contingency plans for managing any significant risks to the environment.

8.1 Assessing Environmental Risk

An environmental risk assessment has been prepared for the Proposal. This environmental risk assessment identifies, assesses and evaluates the potential risk of the various activities associated with the Proposal. The risk assessment process involved the following:

- Selection and development of an appropriate risk assessment process
- Identification of all potential environmental risks
- Analysis of all potential environmental risks
- Evaluation of environmental risks.

8.2 Methodology

8.2.1 Project Team Discussions

Individuals from the Project Team held a number of meetings to identify, analyse and value potential environmental risks for the Proposal.

8.2.2 Determination and Assigning the Environmental Risk Rating

Risk assessment is the process by which environmental hazards and associated impacts are systematically identified, assessed and ranked according to perceived risk. This environmental risk assessment has been carried out to ensure that all potential risks are identified so that they can be addressed by means of appropriate and effective controls through the development assessment process.

In this environmental risk assessment, risks have been characterised by combining the likelihood of the event occurring and the potential consequence of the event to specify the level of environmental risk associated with each potential impact. The risks have been classified as being high, medium or low. The risk matrix identified in **Table 8.1** was used to assist in determining the ranking.

8.2.3 Environmental Risk Rating

The Risk Assessment Matrix (as shown below in **Table 8.1**) illustrates how the residual environmental impacts of a proposal are assigned. The sum of the values assigned provides an indicative ranking of potential residual impacts after the mitigation measures are implemented as follows:

- The significance of impact is assigned a value between 1 and 5 based on:
 - the receiving environment
 - the level of understanding of the type and extent of impacts
 - the likely community response to the environmental consequence of the project
- The manageability of environmental impact is assigned a value between 1 and 5 based on:
 - the complexity of mitigation measures
 - the known level of performance of the safeguards proposed
 - the opportunity for adaptive management.

Table 8-1 Risk Matrix

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

Table 8.2 provides the outcomes of the Environmental Risk Assessment undertaken for the Proposal.



Table 8-2 Environmental Risk Assessment

<i>Parameter</i>	<i>Impact</i>	<i>Mitigation</i>	<i>Significance</i>	<i>Manageability</i>	<i>Residual impact</i>
Biodiversity	■ Minor loss of trees within the development site. ■ Impacts to flora and fauna.	■ Vegetation clearing would be limited to the amount required to undertake the works. ■ Disturbances beyond the limit of works would be avoided. ■ If non-mobile fauna or habitat features are identified (e.g. birds nest) before or during construction, a suitably licensed and experienced ecologist is to be contacted and appropriate measures would be discussed and implemented prior to commencement/ re-commencement of works.	1	1	2 (Low)
Environmental Amenity, Built Form and Urban Design	■ Visual impact of the development when viewed from the public domain and surrounding residential development. ■ Minor loss of trees within the development site.	■ Implementation of landscaping in accordance the landscape design. ■ The building has been sited and designed to reduce the impact of height and bulk, within the context of functional requirements and the features of the site. ■ The material selection responds to the site context and operational needs.	3	2	5 (Low /Medium)
Traffic, Access and Parking	■ Increased traffic on local roads. ■ Increased parking demand. ■ Intersection performance.	■ Provision of adequate access and performing intersection. ■ Relocation/provision of car parking consistent with that lost due the CHH expansion.	3	2	5 (Low /Medium)
ESD	■ Demand on, water energy and resources.	■ ESD measures incorporated into the design of the built form and construction methodologies. ■ Use of water and energy efficient fixtures and appliances.	3	2	5 (Low /Medium)



Parameter	Impact	Mitigation	Significance	Manageability	Residual impact
Aboriginal and Non-Aboriginal Heritage	■ Damage to Aboriginal sites or artefacts. ■ Damage to historic heritage sites.	■ An unexpected finds procedure be adopted in the event of the discovery of any Aboriginal objects during construction. ■ If any item of European heritage is discovered during works, work shall cease immediately and the project heritage consultant or Office of Environment and Heritage be notified.	4	1	5 (Low /Medium)
Noise and vibration	■ Increase in noise and vibration during construction activities. ■ Increase in noise levels during operation and function of the facility.	■ Preparation of a Construction Noise and Vibration Management Plan. ■ Appropriate mitigation measures to be implemented to ensure noise and vibration levels do not compromise human comfort or damage to building/ structures. ■ Appropriate acoustic attenuation measures to be incorporated in the design to reduce operational and construction noise. ■ Works beyond standard hours to consider and implement additional management measures as applicable.	3	2	5 (Low /Medium)
Soils	■ Exposure of contamination or hazardous materials during construction. ■ Soil erosion and sedimentation as a result of the works.	■ Implement an unexpected finds protocol during earthworks that is focussed on identifying and managing potential contamination sources of contamination. ■ An Erosion and Sediment Control Plan would be prepared and implemented to minimise erosion and sedimentation impacts during construction. ■ Rehabilitation, and erosion and sedimentation control maintenance and monitoring procedures would also be adhered to.	4	2	6 (Medium)
Utilities	■ Impacts to adjacent utilities ■ Need for augmentation	■ The development will comply with the requirements of the relevant public authorities in regard to the connection to, relocation and/or adjustment of services affected by the construction ■ The site would be provisioned by adequate services.	2	1	2 (Low)



Parameter	Impact	Mitigation	Significance	Manageability	Residual impact
Waste	- Waste generation - Poor waste practices	- A detailed Construction Waste Management Plan will be prepared prior to the commencement of works. - Resource management hierarchy principles would be followed. - Working areas would be maintained, kept free of rubbish and cleaned up at the end of each working day.	3	1	4 (Low/Medium)
Stormwater	- Increased runoff. - Reduced water quality from poor quality runoff.	- During construction, erosion and sediment controls will be undertaken. - Installation of stormwater management design solutions and devices.	4	1	5 (Low/Medium)
Bush fire	Bush fire hazard	Relevant bush fire protection measures are implemented.	4	2	6 (Medium)
Flooding	- Flood risk - Impact of building on flood regimes	The building is above the 1% AEP and protected against PMF flood events.	4	2	6 (Medium)



9. Environmental Management

9.1 Environmental Management Plan

All works/ activities would be delivered in accordance with a Construction Environmental Management Plan (CEMP) which incorporates environmental site inductions, toolbox sessions and awareness. A CEMP would be developed, reviewed and approved by HI prior to any works/ activities commencing, and would include all relevant sub plans:

- Erosion and Sedimentation Control Plan/ Soil and Water Management Plan
- Demolition/ Construction Waste Management Plan
- Traffic Control Plan
- Access and Movement Plan (for construction staff).

The CEMP would incorporate all relevant safeguards detailed in this EIS and the requirements of the development consent. These would be implemented and complied with throughout all stages of the Proposal. The CEMP would be submitted to Health Infrastructure for review and approval.

All construction staff and site personnel would be made aware of their environmental responsibilities and safeguard measures within the CEMP to minimise environmental impacts.

An on-site meeting would be held with each relevant contractor, construction staff, site personnel, project manager and HI project staff before the commencement of works/ activities, including site establishment. The purpose of the meeting is to discuss the environmental safeguards that are required to be implemented for the relevant phase of works. The meeting would also include relevant environmental awareness and toolbox talks.

Relevant environmental aspects to be considered for environmental awareness/ toolbox training include the limit of works, environmentally sensitive areas (native flora), pollution prevention, vegetation trimming and removal (noxious weed management, protection of native flora/ fauna), construction methodology (excavation) and hazards (mass movement). The training would also address who is responsible for the various components, e.g. inspection and maintenance of sedimentation and erosion controls, etc. environmental awareness/ toolbox talks would commence early in the program and continue as new personnel/ contractors are engaged.

9.2 Mitigation Measures and Safeguards

The collective measures required to avoid, minimise or mitigate the impacts associated with the proposed works are detailed in **Table 9.1** below. These measures have been derived from the previous assessment in Section 7 and those detailed in appended consultants' reports.

Table 9-1 Mitigation Measures and Safeguards

Issue	Action/ Measure
Biodiversity	■ Vegetation clearing would be limited to the amount required to undertake the works. ■ Disturbances beyond the limit of works would be avoided. ■ If non-mobile fauna or habitat features are identified (e.g. birds nest) before or during construction, a suitably licensed and experienced ecologist is to be contacted immediately and appropriate measures would be discussed and implemented prior to commencement/ re-commencement of works. If an animal is injured during construction WIRES is to be contacted to arrange for capture/ removal of the animal from the works area.
Environmental and Visual Amenity	■ Materials, finishes, screening and landscaping will be implemented generally in accordance with the Architectural and Landscape Plans prepared by MSJ Architects.
Traffic, Access and Parking	■ The recommendations of the transport and accessibility assessment prepared by SECA Solution in relation to parking and traffic/ transport management are to be implemented. ■ A comprehensive Construction Traffic Management Plan will be developed following the engagement of project contractor(s).
Ecologically Sustainable Development	■ The detailed design and construction of the development will incorporate ESD principles, including: - Occupant comfort - Energy and water reduction - Material selection - Emissions reduction - Waste reduction. ■ The recommendations of the Integrated Water Management Plan (IWMP) prepared by Donnelley Simpson Cleary Consulting Engineers (as relevant to water efficiency) would be incorporated.
Aboriginal Heritage	The recommendations of the Aboriginal heritage (due diligence) assessment prepared by Everick Heritage Consultants would be adopted: ■ A cultural heritage induction is provided to all contractors who are engaged as site supervisors or act in senior operational roles. It is recommended that the cultural heritage induction is provided by a suitably experienced member of the Aboriginal community or a qualified archaeologist. The purpose of the cultural heritage induction is to: - Make staff aware of the survey effort to date and potential for the project area to contain Aboriginal sites; - Provide sufficient training for staff to identify Aboriginal objects should they be impacted during construction works; and - Ensure that staff are aware of response procedures in the event of any harm to Aboriginal sites during construction works. ■ It is recommended that if suspected Aboriginal material has been uncovered as a result of development activities within the Project Area: - Work in the surrounding area is to stop immediately; - A temporary fence is to be erected around the site, with a buffer zone of at least 10 m around the known edge of the site; - An appropriately qualified archaeological consultant is to be engaged to identify the material; - If the material is found to be of Aboriginal origin, the Aboriginal community is to be consulted in a manner as outlined in the OEH

Issue	Action/ Measure
	guidelines: <i>Aboriginal Cultural Heritage Consultation Requirements for Proponents</i> (2010). ■ Although it is unlikely that Human Remains will be located at any stage during earthworks within the project area, should this event arise it is recommended that all works must halt in the immediate area to prevent any further impacts to the remains. The site should be cordoned off and the remains themselves should be left untouched. The nearest police station (Coffs Harbour), the Coffs Harbour and District LALC and the OEH Regional Office (Coffs Harbour) are all to be notified as soon as possible. If the remains are found to be of Aboriginal origin and the police do not wish to investigate the site for criminal activities, the Aboriginal community and the OEH should be consulted as to how the remains should be dealt with. Work may only resume after agreement is reached between all notified parties, provided it is in accordance with all parties' statutory obligations. ■ It is also recommended that in all dealings with Aboriginal human remains, the Proponent should use respectful language, bearing in mind that they are the remains of Aboriginal people rather than scientific specimens. ■ It is recommended that if Aboriginal cultural materials are uncovered as a result of development activities within the Project Area, they are to be registered as Sites on the AHIMS, managed by the OEH. Any management outcomes for the site will be included in the information provided to the AHIMS. ■ All effort must be taken to avoid any impacts on Aboriginal Cultural Heritage values at all stages during the development works. If impacts are unavoidable, mitigation measures should be negotiated between the Proponent, OEH and the Aboriginal community.
Non-Aboriginal Heritage	■ All construction personnel working on-site will receive training in their responsibilities under the <i>Heritage Act 1977</i>. ■ Should non-Aboriginal heritage items be uncovered during works, all works in the vicinity of the find will cease and the State Heritage Office and Coffs Harbour City Council will be contacted.
Noise and Vibration	■ The recommendations of the Noise and Vibration Impact Assessment prepared by ARUP are to be implemented to ensure construction and operational noise and vibration impacts are adequately managed and mitigated.
Soils	Geotechnical Conditions: ■ The recommendations of the Coffey Geotechnics investigation and assessment be implemented prior to, and during construction. Acid Sulfate Soils: ■ Acid Sulfate Soils (ASS) or Potential Acid Sulfate Soils (PASS) will be managed in accordance with the Acid Sulfate Soil Management Plan prepared by Coffey Geotechnics. Contamination: ■ Coffey Geotechnics recommends that a Construction Environmental Management Plan (CEMP) be prepared, including an Unexpected Finds Procedure (UFP), for use by the earthworks contractor during construction of the site. ■ Should hardstand surfaces in the near vicinity of the emergency shower be disturbed as part of any future redevelopment works, Coffey



Issue	Action/ Measure
	Geotechnics recommend that observation of the underlying soil material and holding tank be carried out. Erosion and Sedimentation Control: ■ A Soil and Water Management Plan (prepared by Bonacci at Appendix Q) will be implemented in accordance with <i>The Blue Book</i> prior to and during construction. ■ Works will only commence once all erosion and sediment controls have been established. The controls will be maintained in place until the works are complete and all exposed erodible materials are stable. ■ Erosion and sedimentation controls will be checked and maintained (including clearing of sediment from behind barriers) on a regular basis (including after any precipitation events) and records kept and provided on request. ■ All sediment control measures will be checked and repaired or re-installed (if required) if heavy rainfall was forecast.
Utilities	■ The development will comply with the requirements of the relevant public authorities in regard to the connection to, relocation and/or adjustment of services affected by the construction of the proposed development and as outlined within the Utilities Report prepared by ARUP.
Bush fire	■ Recommendations of the bush fire assessment prepared by GeoLINK would be implemented, including: - Asset protection zones; - Construction standards; - Internal access; - Services; - Bush fire emergency and evacuation planning.
Flooding	■ The building will be designed and constructed to ensure appropriate flood protection as per the flood assessment by Bonacci.
Drainage and Stormwater	■ The Proposal will be in accordance with the Civil Design report and associated stormwater and drainage assessments prepared by Bonacci.
Waste	■ A detailed Construction Waste Management Plan will be prepared by an appropriately qualified person prior to the commencement of works. The Waste Management Plan will be prepared in accordance with the EPA's "Waste Classification Guidelines (2008)" and the <i>Protection of the Environment Operations Act 1997</i>. ■ Clean sediment spoils would be reused on-site where required and appropriate. ■ The following resource management hierarchy principles would be followed: - Avoid unnecessary resource consumption as a priority. - Avoidance is followed by resource recovery (including reuse of materials, reprocessing, recycling and energy recovery). - Disposal is undertaken as a last resort (in accordance with the <i>Waste Avoidance & Resource Recovery Act 2001</i>).
Construction Impacts	■ A Construction Environmental Management Plan (CEMP) will be prepared by the appointed contractor prior to the commencement of works. The CEMP will establish site management principles generally in accordance with the Outline (preliminary) Construction Management Plan prepared by Price Waterhouse Coopers.



10. Justification and Conclusion

If approved, the Proposal would deliver positive socio-economic benefits for the local economy and community of Coffs Harbour and the surrounding region. The Proposal would assist in the delivery of a much-needed upgrade and expansion to existing hospital services and level of health care offered at the Coffs Harbour Health Campus, delivering long-term benefits to patients, staff, stakeholders and wider community.

The potential environmental impacts posed by the Proposal have been thoroughly examined throughout this Environmental Impact Statement. Given the site context and being an infill style development consisting of an expansion to the existing hospital, environmental impacts would be limited. Some minor impacts would occur locally. However, no significant or long-term adverse impacts are anticipated. To help ensure that the extent of impact is limited and that unavoidable impacts likely to occur are managed and minimised, mitigation measures and safeguards have been developed and would be implemented and monitored.

The Proposal is considered justifiable taking into account the limited potential environmental impacts and subsequent mitigation measures and safeguards. The Proposal is expected to be a welcome and valued addition to the Coffs Harbour Health Campus. It substantially supports economic development within the region and associated socio-economic and community benefits that would be delivered from a sustainable improvement and expansion to the level of health services available to residents of Coffs Coast Region. The expansion is important to support the further population growth and demographic needs of the region.

The Proposal is in accordance with Ecologically Sustainable Development principles and consistent with the objectives of the *Environmental Planning and Assessment Act* and deserves favourable consideration by the Minister of Planning and Environment or delegate.



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Appendix A

Secretary's Environmental Assessment Requirements



Appendix B

Architectural Statement and Plans



Appendix C

Survey Plan



Appendix D

Capital Investment Value Assessment



Appendix E

BDAR Waiver



Appendix F

Transport and Accessibility Assessment



Appendix G

SEPP 33 Assessment



Appendix H

Aboriginal Heritage Due Diligence Assessment



Appendix I

Non-Aboriginal Heritage Database Searches



Appendix J

Noise and Vibration Assessment



Appendix K

Preliminary Contamination Assessment



Appendix L

Geotechnical Investigation Report



Appendix M

Acid Sulfate Soil Management Plan



Appendix N

Electrical and Communications Utilities Report



Appendix O

Hydraulic Infrastructure Report



Appendix P

Hydraulic Water Management Plan



Appendix Q

Civil Design Report



Appendix R

Structural Report



Appendix S

Bush Fire Assessment



Appendix T

Flood Assessment



Appendix U

Water Resources



Appendix V

BCA and Accessibility Report



Appendix W

Outline Construction Management Plan



Appendix X

Aviation Assessment



Appendix Y

Waste Management Plan