

New Tweed Valley Hospital (Concept Proposal and Stage 1)

*State Significant
Development Assessment
(SSD 9575)
June 2019*



June 2019

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Cover photo

The new Tweed Valley Hospital Masterplan (Source Applicant's supplementary Response to Submissions)

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Glossary

Abbreviation	Definition
AA	Airservices Australia
ACHAR	Aboriginal Cultural Heritage Assessment Report
AEP	Annual Exceedance Probability
AHD	Australian Height Datum
AIAR	Agricultural Impact Assessment Report
ANEF	Australian Noise Exposure Forecast
APZ	Asset Protection Zone
Applicant	Health Administration Corporation
BCA	Building Code of Australia
BC Act	<i>Biodiversity Conservation Act 2016</i>
BDAR	Biodiversity Assessment Report
BMP	Biodiversity Management Plan
BSAL	Biophysical Strategic Agricultural Land
BSR	Bushfire Assessment Report
CASA	Civil Aviation Safety Authority
CEMP	Construction Environmental Management Plan
CIV	Capital Investment Value
Council	Tweed Shire Council
DCP	Tweed Development Control Plan 2008
Department	Department of Planning and Environment
Dol	Department of Industries
DSI	Detailed Soil Investigation Report
EEC	Endangered Ecological Communities
EIE	Explanation of Intended Effects
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	Environmental Planning and Assessment Regulation 2000
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EPI	Environmental Planning Instrument
ESD	Ecologically Sustainable Development
GANSW	Government Architect NSW
GCA	Gold Coast Airport
GFA	Gross Floor Area
HAR	Historical Heritage Assessment Report

KLP	Kingscliff Locality Plan
ICNG	Interim Construction Noise Guideline
INP	Industrial Noise Policy
ISEPP	State Environmental Planning Policy (Infrastructure) 2007
Minister	Minister for Planning
MNES	Matters of National Environmental Significance
NML	Noise Management Level
NVIA	Noise and Vibration Impact Assessment Report
OEH	Office of Environment and Heritage
PBP 2006	Planning for Bushfire Protection 2006
PBP 2018	Planning for Bushfire Protection 2018
PMF	Probable Maximum Flood
RAP	Remedial Action Plan
RFS	NSW Rural Fire Service
RL	Relative Level
RMS	Roads and Maritime Services
RtS	Response to Submissions
SDRP	State Design Review Panel
SEARs	Planning Secretary's Environmental Assessment Requirements
Secretary	Planning Secretary of the Department of Planning and Environment
SEPP	State Environmental Planning Policy
SEIA	Social and Economic Impact Assessment Report
SRD SEPP	State Environmental Planning Policy (State and Regional Development) 2011
SEPP 55	State Environmental Planning Policy No. 55 – Remediation of Land
SSD	State Significant Development
SSF	State Significant Farmland
SRtS	Supplementary Response to Submissions
TfNSW	Transport for NSW
TIA	Traffic Impact Assessment Report
TEC	Threatened Ecological Community
TLEP 2014	Tweed Local Environment Plan 2014
TLEP 2000	Tweed Local Environment Plan 2000
TTH	Tweed Heads Hospital (existing)
TVH	New Tweed Valley Hospital
WMP	Waste Management Plan



Executive Summary

This report provides an assessment of a State significant development (SSD) application lodged by Health Infrastructure, on behalf of Health Administration Corporation (the Applicant), seeking approval for the New Tweed Valley Hospital (SSD 9575). The proposal is SSD under clause 14 of Schedule 1 to the State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP), as it is for a hospital with a CIV in excess of \$30 million.

Introduction

Northern NSW is one of the fastest growing regions in the State, with Tweed and Byron Local Government Areas (LGA) being the fastest growing areas in Northern NSW Local Health District (NNSW LHD). The future health services in the region must accommodate the growing demand in the long term, based on the projected population in the region and the demographic trend of an ageing population. The Applicant has identified constraints to the existing Tweed Hospital (THH) site at Tweed Heads town centre, that would restrict it from being redeveloped to allow timely and adequate delivery of the health services in the region. Consequently, the Applicant is seeking approval for a new hospital in a greenfield site located on 771 Cudgen Road, Cudgen (Lot 11 DP 1246853), at the western edge of the Kingscliff urban area, within the Tweed Shire LGA.

The proposal is a concept development application for the New Tweed Valley Hospital (TVH), comprising:

- a Concept Proposal for a maximum building envelope to accommodate: a nine-storey hospital with rooftop helipad and a building for supporting services (health hub); approximate gross floor area of 65,000 square metres (maximum); site access arrangements, car parking facilities, landscape and public domain treatment strategies; stormwater drainage; and Tweed Coast Road / Cudgen Road intersection upgrade.
- early and enabling works for Stage 1 of the development comprising: site clearance including vegetation removal, bulk earthworks and piling; site remediation works; utility connections and augmentation; establishment and operation of the construction compound; drainage infrastructure; retaining walls; temporary internal roads with car parking areas and fencing; and two boundary vehicular access points.

The Concept Proposal has a capital investment value (CIV) of approximately \$472 million and would generate up to 771 construction jobs per year (2700 full time equivalent construction jobs over 3.5 years of construction works in Stages 1 and 2) and approximately 208 new operational jobs upon completion.

The Applicant proposes to lodge a Stage 2 application for the detailed design, construction and operation of the hospital with associated facilities, if the Concept Proposal and Stage 1 works are approved. The Stage 2 application would be informed by the design and operational parameters of the Concept Proposal.

The site

The contextual key issues relevant to the site in relation to the proposed development are:

- the site was previously zoned RU1 Primary Production and R1 Residential under Tweed Local Environmental Plan 2014 (TLEP). The use of the land as a hospital was prohibited in the then RU1 zone. The site was rezoned to SP2 Infrastructure (Health Services Facility) in February 2019 by the then Minister for Planning. The development is now permissible under the TLEP in the current SP2 zone.
- the proposed development would be located on land that is mapped as State significant farmland (SSF). The proposed change of use would result in loss of arable land within the Cudgen Plateau.
- the northern section of the site accommodates mapped coastal wetlands under the State Environmental Planning Policy (Coastal Management) 2018 and contains significant biodiversity. The location of the

development footprint may have potential impacts on the biophysical and hydrological integrity of the coastal wetlands.

- the proposed development would be located in an existing rural area. The proposed built form of the hospital would be highly visible, with potential for adverse visual impacts, both locally and regionally.
- the future hospital would result in significant traffic generation within the locality. The construction works in Stage 1 would also result in adverse noise impacts on the surrounding residential areas.
- the social and economic impacts of the development relate to relocation of the health facilities from Tweed Heads to the TVH site, associated potential changes to the character of the Kingscliff locality in relation to the development of a hospital of this size and the impacts of the Stage 1 construction works.
- given the previous use of the site, there is potential for soil contamination within the developable area.
- there is significant community interest in this development due to loss of SSF and the potential cumulative impacts of the development on the locality. Tweed Shire Council has objected to the proposal due to inconsistencies with the local planning directions and loss of arable land within Cudgen.

Community engagement

The SSD application was publicly exhibited between 1 November 2018 and 13 December 2018 (43 days). During this time, the Department of Planning and Environment (the Department) received a total of 444 submissions to the SSD application including: 12 submissions from public authorities; one submission from Tweed Shire Council (Council) objecting to the development; 426 individual submissions from the members of public including 397 objections; and five submissions as objections from organisations / community groups.

After the closure of the exhibition period, the Department also received several submissions from previous submitters, a further two individual submissions and one submission from a community group objecting to the development. The Department's representatives also met with senior Council officers in January 2019 to discuss the key concerns.

The key issues raised in the submissions related to: inappropriate site selection; loss of agricultural land; lack of access during flood events; risks due to spray drifts from adjoining agricultural uses; urbanisation of the surrounding land due to the proposed rezoning; adverse visual impacts; impacts on coastal wetlands and biodiversity; inadequate ecological buffers; traffic, noise and dust impacts; social and economic impact due to relocation of the existing hospital; soil contamination; and unsatisfactory community consultation.

The Applicant's Response to Submissions (RtS), submitted on 4 February 2019, and supplementary responses (SRtS) were lodged in February 2019 and addressed the key issues raised in the submissions from both the public authorities and the community. The scope of the application was amended to include two vehicular access points, one sediment basin and site remediation works in Stage 1 as well as the intersection upgrade works in Stage 2 to cater for the additional traffic volume.

The Department received an additional nine submissions from public authorities including Council, several submissions from 10 individual public submitters and one community group, in response to the RtS.

In response to the outstanding issues raised in the submissions and the Department's request for additional information, the Applicant provided multiple SRtS between March and May 2019. The SRtS amended the building footprint location complying with Asset Protection Zone requirements, included comprehensive mitigation measures, removed the additional sediment basin, included additional assessment of the drainage works and traffic matters, provided the agricultural offset measures and information on helicopter operations.

Assessment summary and conclusion

The Department has considered the merits of the proposal in accordance with relevant matters under section 4.15(1), the objects of the *Environmental Planning and Assessment Act 1979*, the principles of Ecologically Sustainable Development, and issues raised in all submissions as well as the Applicant's response to these. The Department's assessment concludes that:

- the Applicant has satisfactorily established the need for the proposal in relation to the functional improvements and the health services need in the area. The proposal would include a significant investment in public infrastructure, deliver important services and sustain employment growth in the region.
- the site-selection process undertaken by the Applicant, prior to the lodgement of the SSD application, considered the feasibility of alternative locations and confirmed the suitability of the site for the facility. The Applicant has also demonstrated that access to the site would be maintained during major flood events in the region. The developable area of the site would be located above the Probable Maximum Flood level.
- the proposal would deliver significant public benefits in terms of the provision of health care and employment and is consistent with key Government strategic plans and policies including the North Coast Regional Plan 2036 which allow critical public infrastructure to be located on SSF, when feasible alternative sites are not available.
- the loss of the SSF would be offset by the provision of a critical infrastructure in the region that the proposed development represents, and the residual impacts would be mitigated by an Agricultural Offset Plan proposed by the Applicant. The Applicant also proposes measures including vegetative buffers along the boundaries to screen the identified risks such as spray drifts due to the adjoining agricultural uses.
- the proposed built form would be significantly prominent, when viewed both locally and regionally. However, a substantial reduction in the building mass would compromise the building's ability to accommodate its functional areas. The Stage 2 assessment would provide the opportunity to reduce impacts by reducing the bulk and scale of the building in consultation with the Government Architect NSW.
- the development has been sited to avoid and minimise impacts on the identified biodiversity, wherever possible. The residual impacts are minor and can be managed and mitigated via recommended conditions of consent.
- the Applicant proposes to upgrade nearby intersections, signalise the main entry and include sufficient parking spaces within the site, to address the cumulative impacts due to additional traffic generated by the future hospital. Appropriate measures are being proposed to minimise adverse noise impacts during Stage 1 construction works and address site remediation prior to the commencement of Stage 1 construction works.

The Department is satisfied the impacts of the proposed development and issues raised in the submissions have been addressed in the Environmental Impact Statement (EIS), Response to Submissions (RtS) and Supplementary Response to Submissions (SRtS) and can be adequately managed through the recommended conditions. The proposal would deliver a critical public infrastructure in the locality and is in the public interest. Approval of the proposal is recommended subject to conditions of consent.

Supporting details

Site suitability

The majority of the public submissions raised concerns regarding the suitability of the site and the efficacy of the site selection process. The Department considers that the site selection process and any comparisons of the suitability of other sites are outside the scope of this assessment and are matters that have been responded to by the Applicant.

The Department acknowledges that the proposed development would be located on land that is mapped as State significant farmland (SSF). However, the loss of arable land due to the siting of the development is not substantial and would not fragment existing SSF. The residual impacts of the loss of agricultural land can be offset by the provision of an Agricultural Offset Plan. Additionally, impacts of the spray drifts due to the adjoining agricultural uses are proposed to be screened by incorporating a vegetative buffer on the southern and western boundaries of the site.

The Applicant has demonstrated that the developable area of the site would be located above the Probable Maximum Flood (PMF) level for the site and established that access to this site during 1% and 5% Annual Exceedance Probability (AEP) events can be maintained. Alternate access to Robina Hospital would be available in case of any obstructions to the identified access routes.

Built form and urban design

The Applicant has argued that the proposed nine – storey building envelope would not have an unreasonable impact on the nearby residential / educational areas and rural land, both visually and in terms of overshadowing because of the substantial setbacks, the vegetative screening on the northern and southern sides, and built form articulation guided by the submitted Urban Design guidelines. The Department agrees with the Applicant’s visual assessment that the proposed building envelope would not significantly compromise any identified view corridors or distant water view in the region.

The proposed development would be highly visible both locally and regionally when compared to the existing built form and the rural settings. While recognising this visual prominence, the Department acknowledges that any substantial reduction in the building mass would compromise the functional areas. The Department also considers that the building envelope is the worst-case scenario. The Applicant is undertaking extensive consultation with the Government Architect (GANSW) to develop the detailed design of the future hospital and incorporate building articulation as well as landscaped screening to improve the visual impact of the built form. There are opportunities to improve the visual impact of the built form by reducing the building bulk through the detailed design in Stage 2, in consultation with GANSW.

Biodiversity impacts and coastal wetlands

The northern section of the site accommodates mapped coastal wetlands under the State Environmental Planning Policy (Coastal Management) 2018, a 100m wide proximity area (buffer) on the southern edge of the wetlands and contains Endangered Ecological Communities (EEC) and Threatened Ecological Communities (TEC). The application is supported by a Biodiversity Assessment Report (BDAR), which concludes that no serious or irreversible biodiversity impacts are envisaged due to this development. The Stage 1 works would remove 0.95 hectares of vegetation, thus generating three ecosystem credits and 14 species credits. The credits are to be retired to offset this impact under the provisions of the *Biodiversity Conservation Act 2016*.

The proposal involves works (both Stage 1 and the future development) within the mapped proximity area to the coastal wetlands and includes Asset Protection Zones in this area as well. The Department’s assessment concludes that the works would have no significant impacts on the identified biodiversity or integrity of the coastal wetlands, subject to the incorporation of appropriate setbacks, suitable mitigation measures and recommended conditions of consent. While the proposed stormwater system and the water quality treatment strategies for the future development are acceptable in principle. The Department has recommended conditions to ensure that this matter is addressed in Stage 2.

Traffic, transport and parking

The Applicant’s assessment of the traffic impacts in relation to the future operation of the hospital identified a number of potential traffic impacts in relation to the surrounding network capacity. In response to the identified

impacts, the Applicant proposes to upgrade nearby intersections, signalise the proposed main entry and include sufficient parking spaces within the site for staff and visitors. While the details of these impacts would be considered in Stage 2, the Department's assessment concludes that subject to the implementation of these measures, the additional traffic can be accommodated in the existing network. The Department is also satisfied that the surrounding road network can accommodate the heavy vehicle movements during the Stage 1 construction works without substantially impacting on the amenity of the surrounding residential and educational establishments.

Noise

The Department's assessment identifies that exceedances above the project specific noise management levels would occur at nearby sensitive receivers, during specific construction works on the site during Stage 1. To mitigate these impacts, conditions of consent recommend several management and mitigation measures during the Stage 1 works including works being restricted to standard construction hours, inclusion of respite periods and noise monitoring procedures. The impacts of noise generated due to the operation of the hospital would be assessed in detail in Stage 2.

Social and economic impacts

The social and economic impacts of the development relate to relocation of the health facilities from Tweed Heads to the TVH site, associated potential changes to the character of the Kingscliff locality in relation to the development of a hospital of this size and the impacts of the Stage 1 construction works. To mitigate the identified impacts due to relocation of the hospital, the Applicant proposes: alternate uses for the vacant hospital building in the future (such as aged care, tourism, educational); alternate locations for the health-related facilities that would not be sited within the TVH site; development of a community transportation plan between the two sites to maintain the accessibility to the health services at all times. The Applicant also proposes road infrastructure upgrades within Kingscliff to accommodate the additional hospital traffic. The Department supports the Applicant's approach to mitigate the identified negative social and economic impacts.

The Department acknowledges that notwithstanding the benefits of the hospital, the development could impact on the character of the Kingscliff and Cudgen areas. However, there are other development pressures in the area such as additional residential releases in addition to the hospital itself. Future development of the draft Kingscliff Locality Plan by Council, in consultation with the local community, would assist in balancing demand for growth with the desire to retain the local character of Kingscliff.

Contamination

The application includes a detailed Soil Investigation Report which identifies asbestos contamination on the site. The Applicant states that a Remedial Action Plan (RAP) would be implemented to remediate the site, as part of the Stage 1 works. Based on the comments from NSW Environment Protection Authority (EPA), the Department considers that additional investigations are needed in sections of the site to determine the presence of a cattle dip and potential heavy metals such as arsenic. The Applicant may need to undertake further remediation works, if the results of the investigations identify additional contaminants on the site. The Department has recommended conditions to facilitate additional investigations and remediation works on the site prior to the commencement of the Stage 1 construction works, as well as the engagement of an EPA accredited Site Auditor throughout the duration of the investigations and remediation works to ensure that the site is remediated satisfactorily prior to the use commencing. The Department is satisfied that subject to the additional investigations and additional remediation works (if any), the site can be made suitable for the purpose of a hospital.



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1. Introduction

This report provides an assessment of a State significant development (SSD) application lodged under Part 4, Division 4.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), for the New Tweed Valley Hospital (TVH) at 771 Cudgen Road, Cudgen, within the Tweed Shire Local Government Area (SSD 9575). Health Infrastructure, on behalf of Health Administration Corporation (the Applicant), proposes a concept development application for the TVH comprising:

- a Concept Proposal for: a maximum building envelope to accommodate a nine-storey hospital (including basement) with a rooftop helipad; a building for support services (health hub); maximum gross floor area of approximate 65,000 square metres; site plan, landscaping, access and parking; and intersection upgrades.
- concurrent Stage 1 early and enabling works comprising: bulk earthworks; piling and retaining walls; tree removal; services and utility connections; drainage infrastructure; remediation works; site access points and intersection improvements; and establishment of the construction compound.

1.1 Site description

The site comprises one allotment known as 771 Cudgen Road, Cudgen, legally described as Lot 11 DP 1246853. The site is located within the Tweed Shire Local Government Area (LGA), approximately 9.8 kilometres (km) south of Tweed Heads town centre and 40km south-east of Surfers Paradise in Gold Coast.

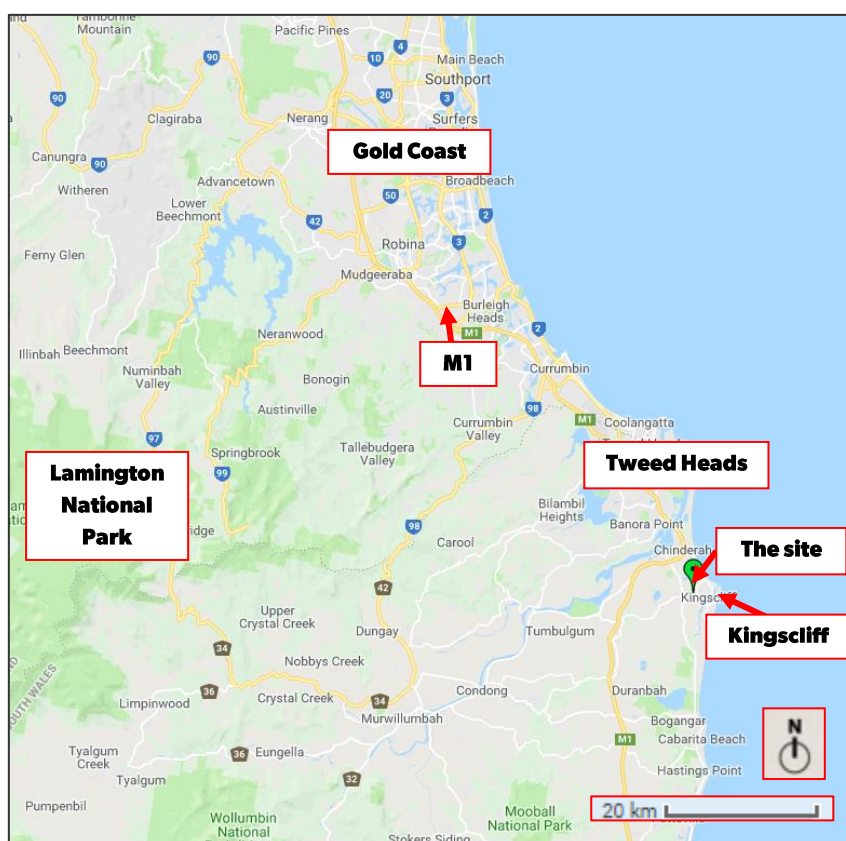


Figure 1 | Regional Context Map (Source: Nearmap 2018)

At the time of lodgement of the EIS, the site was legally described as being part of Lot 102 DP 87072 (**Figure 2 - left**). The southern section of this allotment has now been acquired by Health Administration Corporation in accordance with *Land Acquisition (Just Terms Compensation) Act 1991*. Following the acquisition and

registration of the subdivision, the site boundary was adjusted, and the legal description was amended to be Lot 11 DP 1246853 (**Figure 2** - right). The site, as referred to in this report, comprises the acquired lot only.

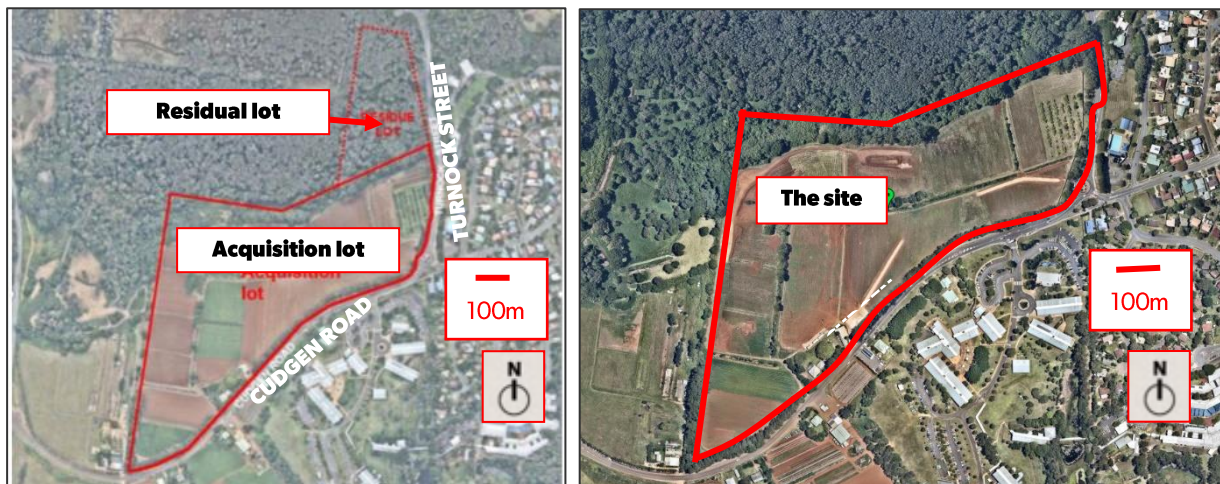


Figure 2 | The parent allotment (Source: Applicant's RtS) and the current site after subdivision (Source: Nearmap 2018)

The site is irregular in shape, with a total area of approximately 19.38 hectares (ha), a 730 metres (m) long frontage to Cudgen Road (south-western boundary) and 185m frontage to Turnock Street (north-eastern boundary). The southern and south-western part of the site, fronting Cudgen Road, comprises a slightly elevated, gentle sloping plateau, with levels ranging between +25m to +27m Australian Height Datum (AHD). The site slopes gently down to the north, east and west of this plateau, surface levels reducing to approximately +5m AHD near the northern boundary, where a flood plain area exists.

The developable area of the site comprises agricultural land, being generally cleared of native vegetation, except trees and shrubs in localised areas. The flat, low lying, floodplain area to the north supports a dense covering of native bush vegetation. A farm dam and a pump are located in this area, at the north-western corner. The dam currently includes overgrown weeds and not in use.

The most recent primary use of the site is for small-scale agricultural purpose, including cropping and horticulture. The Applicant indicates that up until the cessation of agricultural use on the site, it comprised: approximately 11.24ha of cultivated area that was previously used for sweet potato cultivation; 0.58ha of custard apple trees; and 0.19ha paddock to the north of the custard apples trees. Views of the site are provided in **Figures 3** and **4**.



Figure 3 | Panoramic view of the site from west to east facing north (Source: Applicant's EIS)



Figure 4 | View of the elevated plateau and the low-lying areas to the east (Source: Applicant's EIS)

The site is subject to the following constraints (**Figure 5**):

- the northern edge of the site accommodates 'coastal wetlands' (as defined in the *Coastal Management Act 2016*) with an approximately 100m wide 'proximity area for coastal wetlands' (proximity area), mapped under the State Environmental Planning Policy (Coastal Management) 2018 (Coastal Management SEPP)
- the existing vegetation includes Endangered Ecological Community (EEC) and is identified as potential Koala Habitat under State Environmental Planning Policy No. 44 – Koala Habitat Protection (SEPP 44)
- the northern portion of the site comprises flood prone land below the Probable Maximum Flood (PMF) level of +8m AHD
- majority of the southern part of the site is mapped as State Significant Farmland (SSF) in the Northern Rivers Farmland Protection Project 2005 and as Biophysical Strategic Agricultural Land (BSAL) in the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 (Mining SEPP)
- the northern part of the site comprises bushfire prone land (category 1 vegetation and buffer)
- the site includes Acid Sulfate Soils mapped under the Tweed Local Environmental Plan 2014 (TLEP 2014).

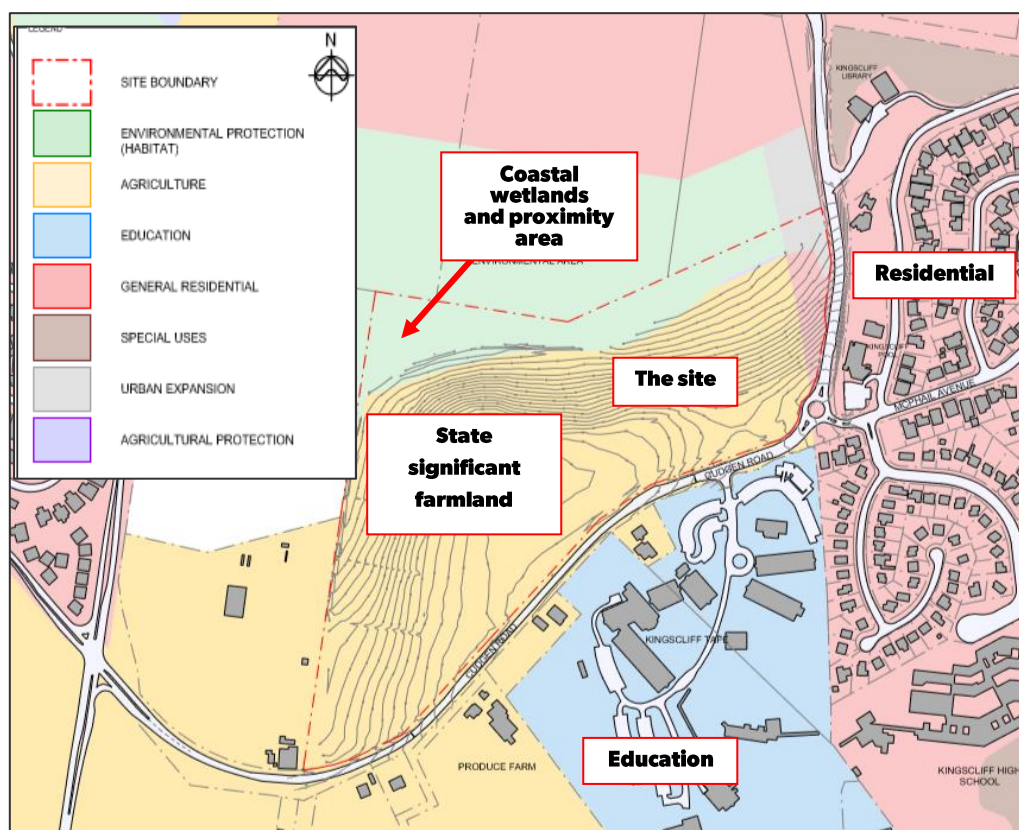


Figure 5 | Location of the site constraints and surrounding land uses based on TLEP 2014 (Source: Applicant's SRTs)

1.2 Preliminary works undertaken on the site

Preliminary works have been undertaken on the site by the Applicant under the provisions of Part 5 of the EP&A Act. The Applicant has advised that a Review of Environmental Factors (REF) was completed prior to undertaking these works. The works are listed below:

- site establishment including fencing and temporary amenities to service the preliminary works.
- construction of four sediment basins with head walls within the proximity area, to manage the existing stormwater flow (**Figure 14**).
- temporary car parking areas for construction works in relation to the preliminary works.
- demolition of existing onsite buildings and structures (the previous residence and the farm sheds).

The most recent aerial view of the site with the preliminary works is identified in **Figure 7**.

1.3 Public transport and access

Two existing bus stops are located on the Cudgen Road frontage of the site (eastbound and westbound) serving the educational, commercial and residential facilities in the immediate catchment. The existing bus stops are serviced by the Route 603 and Route 601 (terminates within the Kingscliff TAFE site during teaching terms). Footpath connections are available to each bus stop and a pedestrian refuge crossing is located on Cudgen Road. The site and the surrounding land uses are reliant on the private vehicles with off street parking provisions within all community uses in Kingscliff. The vehicular access to the site is from Cudgen Road. Both Cudgen Road and Turnock Street have limited shoulders with no provisions for kerbside parking spaces.

1.4 Surrounding developments

The site forms part of a large rural area at the western edge of the Kingscliff area. It is well connected to the regional and interstate road network via Tweed Coast Road (to the west) and M1 (Pacific Highway) (**Figure 6**).

The northern and north-western boundary of the site adjoins mapped coastal wetlands. The Applicant states that majority of the western part of the site is mapped as a regional fauna corridor by the Office of Environment and Heritage (Fauna corridors of north - east NSW). The existing vegetation provides connectivity and facilitates movement of various fauna species. This forested wetland with associated rainforest components blends eastward into a coastal floodplain extending up to 200m of the coast. This area is a significant habitat to the Cudgen Creek estuary (approximately 800m south-east of the site). A constructed, east-flowing floodplain drain runs across the wetlands, near the northern boundary of the site, to drain this catchment. This area is marked as an environmental area in **Figure 7**. The Kingscliff TAFE is located immediately opposite the site, to the south of Cudgen Road. To the south-west and west are agricultural lands that form part of the mapped Cudgen Plateau SSF.

The Kingscliff urban area, to the east of the site, stretches between Cudgen Road / Turnock Street to the west and the Kingscliff beach to the east (1.5km from the site). It is a coastal town with residential developments, schools, library, TAFE, pool, low scale commercial developments, tourist activities and a population just under 7500 people (**Figure 7**).

The Cudgen village, located on the western side of Tweed Coast Road, has a population of 1000 people.

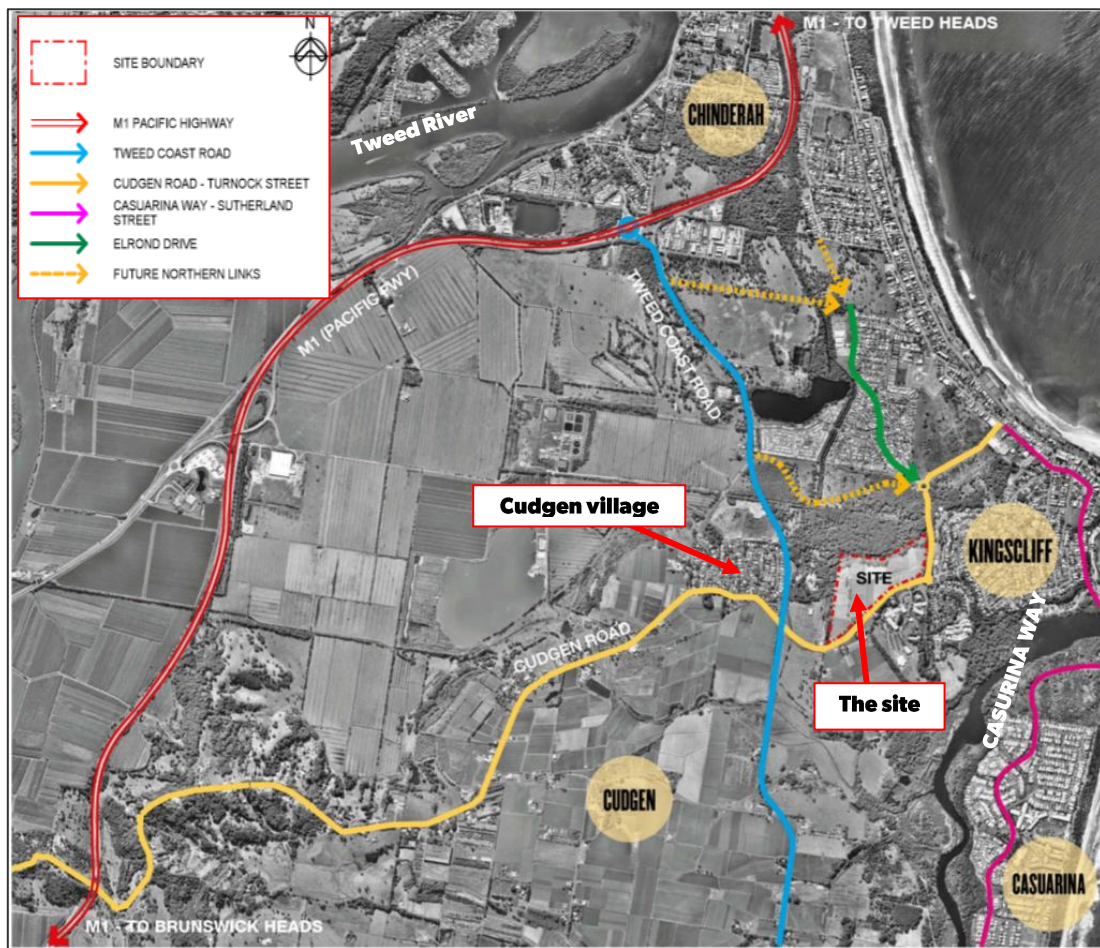


Figure 6 | Local context map (Source: Applicant's SRTS)

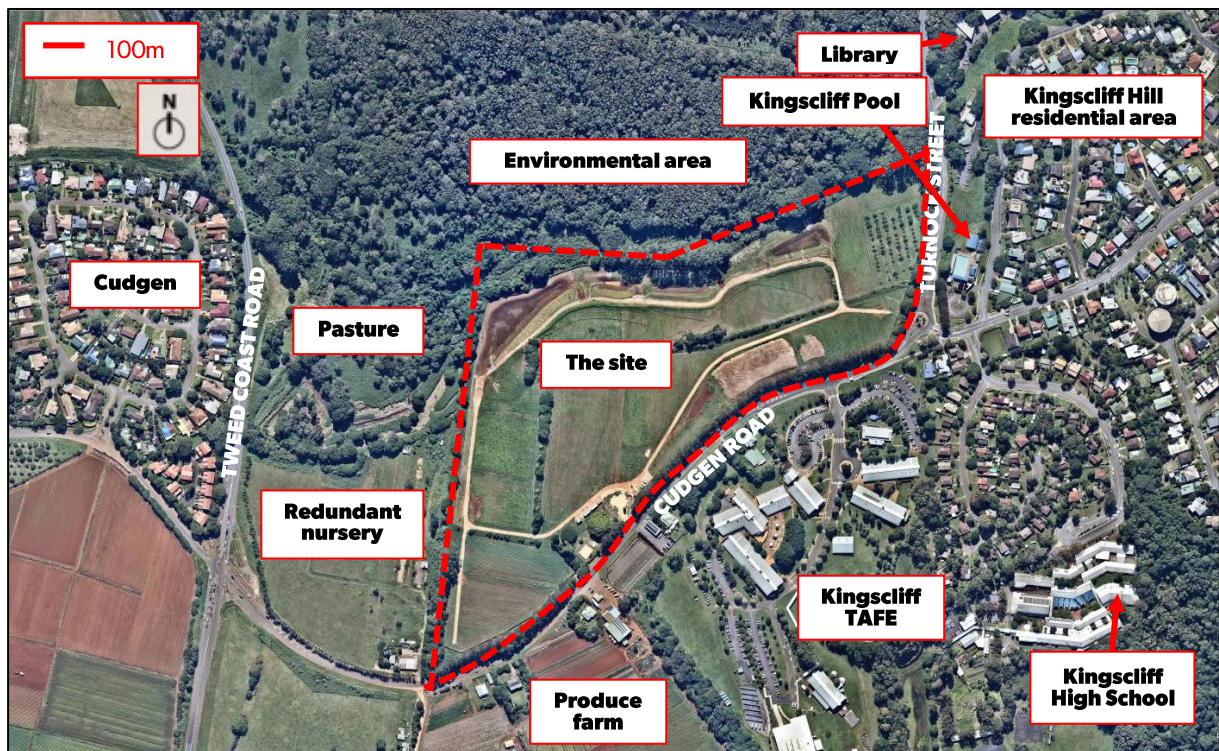


Figure 7 | Local context map identifying the site and the surrounding developments (Source: Nearmap)

1.5 Existing health facilities in the region

The Tweed Hospital (TTH) is an existing major non-metropolitan hospital within the Tweed Shire and Byron LGAs, managed by the Northern NSW Local Health District (NNSW LHD) with 1053 full time equivalent staff. The Applicant advises that the hospital is categorised as Level 5 by NSW Health role delineation guidelines in terms of the range of health services provided at the hospital. The hospital is located 600m from the Tweed Heads town centre, north of Terranora Creek.

The Murwillumbah District Hospital (24.5 km from TTH) and Byron Central Hospital (53.2 km from TTH), are closely networked to TTH with lower level role delineations. The site is the same distance to Murwillumbah District Hospital as the TTH, and 55km to Byron Central Hospital (**Figure 8**). Robina Hospital (Queensland) is located approximately 33.5km north west of the site. Cross State agreements are in place between the NSW and Queensland to facilitate patient movement between the two States.

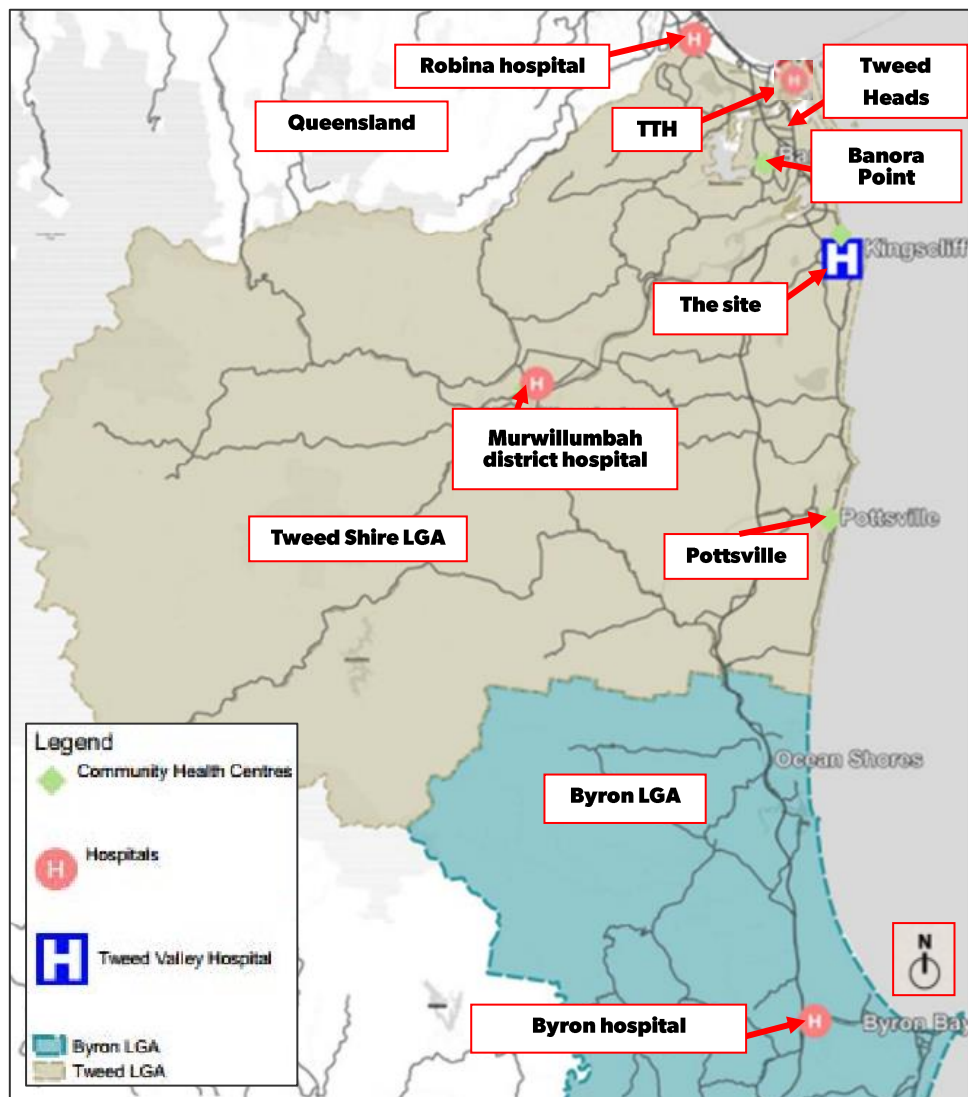


Figure 8 | Regional hospital locations (Source: Applicant's EIS)

1.6 Proposed developments in surrounding areas

Tweed Shire Council's draft Kingscliff Locality Plan (KLP) identifies the land, immediately to the north of the environmental area, as having major development potential. The draft KLP proposes a Business and Knowledge Precinct adjacent to the M1 and residential developments of approximately 1500 potential dwellings. Other key developments proposed in the area include the Kings Forest and Gales-Kingscliff developments.

The Kings Forest development site is located to the south of Cudgen and is a State Significant Site. The Concept Approval for the Kings Forest development allows for: 4500 dwellings; town centre and neighbourhood centre with retail and commercial uses; employment land; community and education facilities; open space, wildlife corridors, protection and rehabilitation of environmentally sensitive land; water management areas and lake; and roads, bicycle and pedestrian network and utility services infrastructure.

The EIS notes that the Gales-Kingscliff development sites, located to the north of the site, are still in planning stages. The development proposes a mixture of land uses, including residential, commercial, neighbourhood and community facilities.

Figure 9 identifies the locations of the proposed development sites in the region.

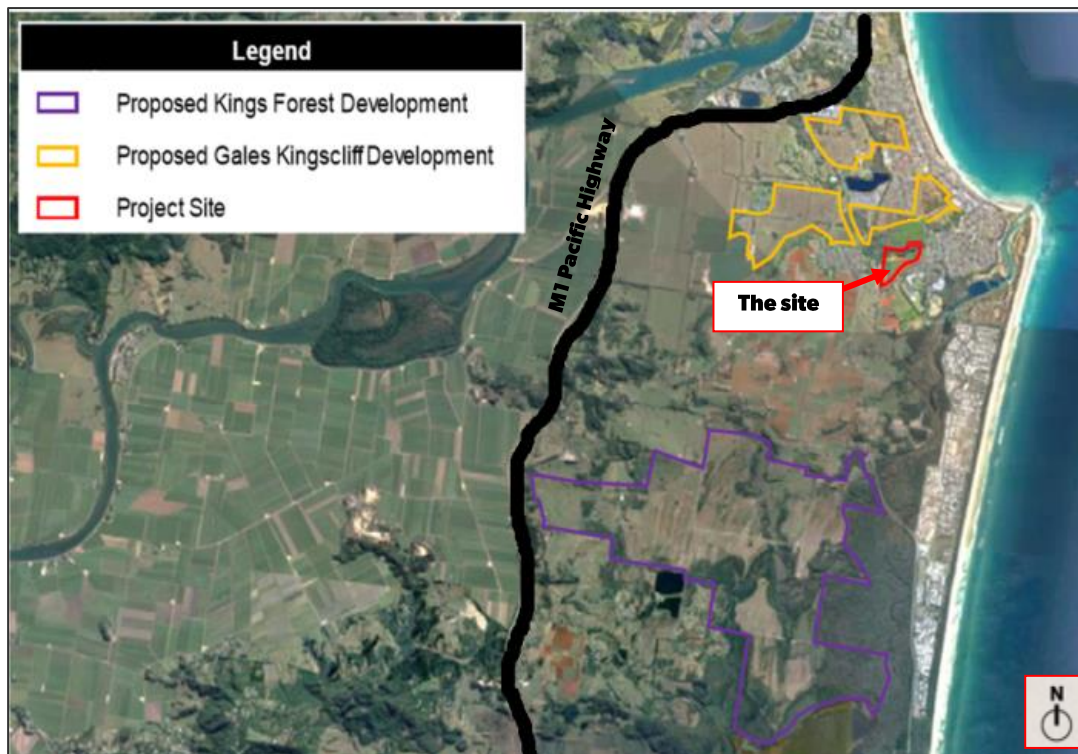


Figure 9 | Proposed developments in the near vicinity of the site (Source: Applicant's EIS)

2. Project

The key components and features of the proposal, as refined in the Response to Submissions (RtS) and the supplementary Response to Submissions (SRtS), are provided in **Table 1** and are shown in **Figures 10 to 15**.

Table 1 | Main components of the project

Aspect	Description
Project Summary	Concept development application for the New Tweed Valley Hospital (TVH) including a Concept Proposal for the maximum building envelopes, site layout, access arrangements, landscaping and road upgrades, and Stage 1 early and enabling works.
Site area	19.38ha.
Concept Proposal	
Development components	- Maximum building envelope for a hospital with a rooftop helipad. - Maximum building envelope for a building with support services (health hub). - Gross floor area for all buildings on the site. - The site layout, internal roads, site access arrangements and car parking. - A landscape masterplan, public domain treatments and stormwater strategy. - An electrical substation. - Tweed Coast Road and Cudgen Road intersection upgrade. - Outline of the staging of the development.
Built envelope	- The building envelope for the future hospital includes: - a maximum nine-storey building envelope including basement. - plant rooms and helipad on top of the nine-storey envelope. - the uppermost level of the nine-storey envelope at RL 54.85. - the uppermost level of the envelope at RL 67.1 including the helipad. - the lowest level of the envelope at RL 14.25. - maximum building height, varying between 27m – 40.6m for the building mass and additional 12.5m for the plant room and helipad. - The building envelope for the health hub includes: - the uppermost level of the building envelope at RL 39.4 (three-storey). - the building entry level from Cudgen Road at RL 27.75.
Gross floor area (GFA)	approximately 55,000 square metres (sqm) to 65,000sqm.
Design principles	Establishment of design principles for the future buildings and the site plan.
Landscaping	Landscape strategy identifying open spaces, planting and courtyards.

Vehicular access and parking	• A primary vehicular access point from Cudgen Road (signalised). • A vehicular ingress point (un-signalised) off Cudgen Road at the south - western end of the site for a service road that would provide access for emergency vehicles, service vehicles and staff. • A secondary vehicular ingress point (un-signalised) off Cudgen Road east of the main entry, providing access to the eastern carparks. • A two - way vehicular access point via the roundabout at the intersection of Cudgen Road and Turnock Street on the eastern side for service vehicles. • Approximately 700 spaces in four at-grade carparks (for public and staff). • Passenger drop-off and pick-up areas near the emergency department.
Pedestrian access	• An external pedestrian pathway with an east-west axis across the southern face of the main hospital linking the various at grade car-parks. • An external / internal pedestrian pathway with an east-west axis through the hospital linking the various sections of the site.
Intersection upgrade	• Upgrade to the intersection of Tweed Coast Road / Cudgen Road including: ◦ a new left turn and storage lane (southbound) on Tweed Coast Road and extension of the short north lane (northbound) north of the intersection. ◦ reconfiguration of the traffic lanes and pedestrian crossing on Cudgen Road. ◦ relocation of traffic light infrastructure, stormwater and other services.
Jobs	• 2700 full time equivalent construction jobs for Stages 1 and 2. • Approximately 208 new operational jobs.
Staging	• Stage 1 – Early and enabling works (detailed below). • Stage 2 – Detailed design, construction and operation of the new hospital and ancillary support services with road works and intersection upgrade works.
CIV	\$472,584,715

Stage 1 works

Development components	• Establishment and operation of the construction compound. • Temporary internal roads, laydowns and parking for use during construction. • New vehicular access points to the site from Cudgen Road. • Addition of an access and roadworks to the roundabout at the intersection of Turnock Street / Cudgen Road. • Augmentation and connection of permanent services for the new hospital. • Bulk earthworks to establish the required site levels. • Piling with associated works and retaining walls. • Stormwater infrastructure for Stage 1 works. • Soil and water management measures and site remediation works.
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Bulk earthworks	• Volume of cut – 108,950 cubic meters (m³). • Volume of fill – 63,963m³.
Vehicular access and intersection improvements	• New vehicular access point from the Turnock Street roundabout involving: ○ a new two – lane road connection to the western side of the roundabout. ○ footpath connection and pedestrian refuge / median. ○ changes to line marking and adjustments to services. • New vehicular access point on the western side involving: ○ a 3.5m wide slip lane/ deceleration lane from Cudgen Road into the site. ○ road widening and realignment of footpath and pedestrian crossing.
Tree removal	• Two trees and over 150 windbreak trees (0.95ha of vegetation).
Hours of construction	• 7am and 6pm Monday to Friday. • 8am and 1pm Saturday with no works on Sundays or public holidays.
Jobs	• 771 construction jobs per year.
CIV	• \$43,359,598

2.1 Concept Proposal

The Concept Proposal sets out a ‘maximum planning envelope’ for the proposed buildings on site and a concept masterplan for the TVH site (**Figure 10** and **11**). Car parking facilities are proposed on either side of the hospital, with access points and circulation areas, catering for emergency vehicles, staff, patients and visitors. The EIS states that the masterplan would include future opportunities for additional health, education, training and research facilities to support the TVH (subject to separate development applications).

The EIS includes an early block and stack arrangement of the building mass to inform the future design of the buildings (**Figures 12** and **13**). This arrangement suggests a framework for the organisation of a plinth, a podium and the in-patient units (IPU).

The Concept Proposal does not seek approval for the operational parameters of the future hospital. However, the EIS indicates (as a guide) that the future hospital be consistent with the benchmarking for the NSW regional hospitals and would potentially result in a yield of 430 beds and 1050 staff, associated allied health services, emergency services and facilities, ancillary food and retail outlets (e.g. cafes, florist etc.).

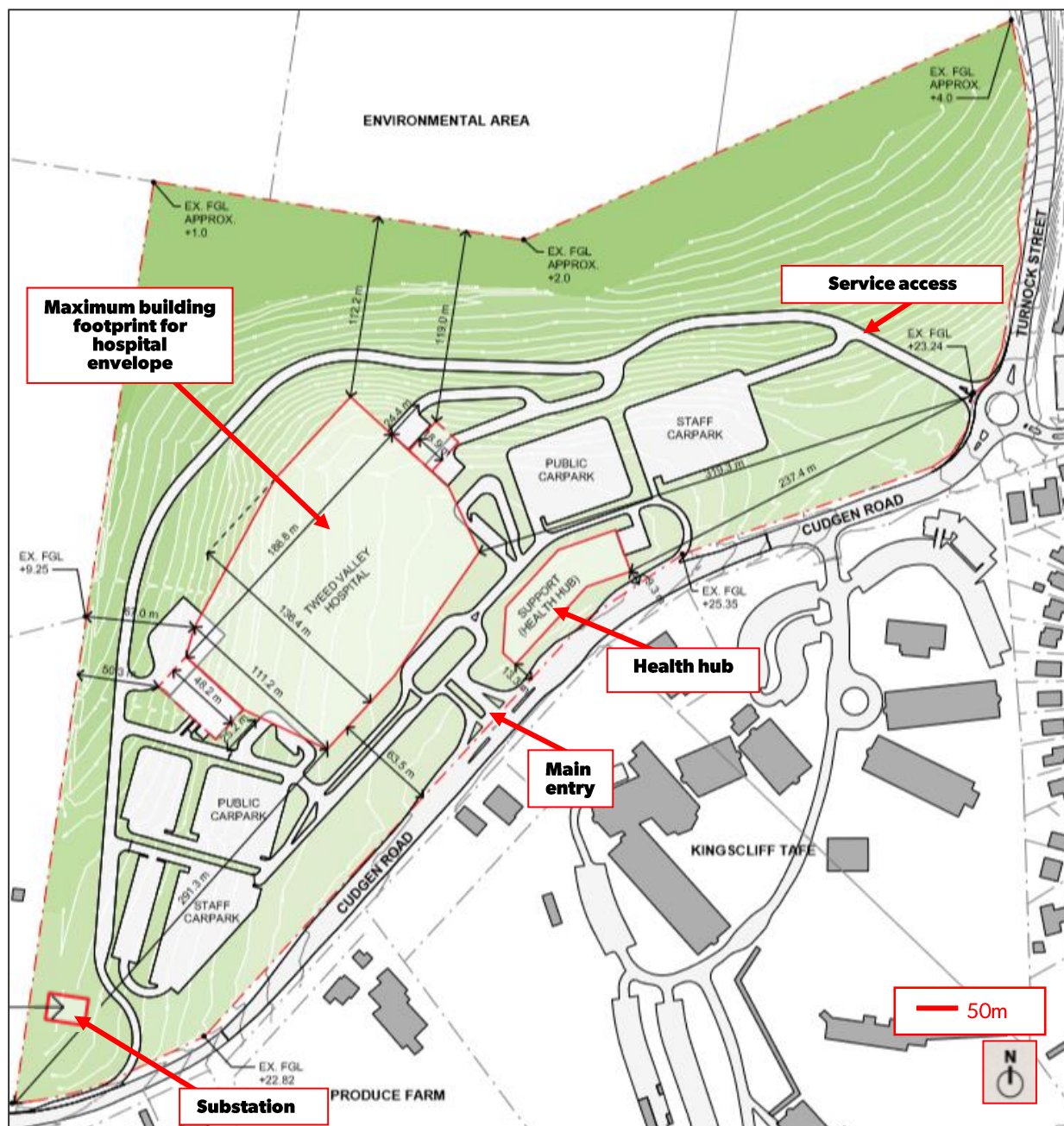


Figure 10 | Concept site layout with building footprints and setbacks (Source: Applicant's SRTs)

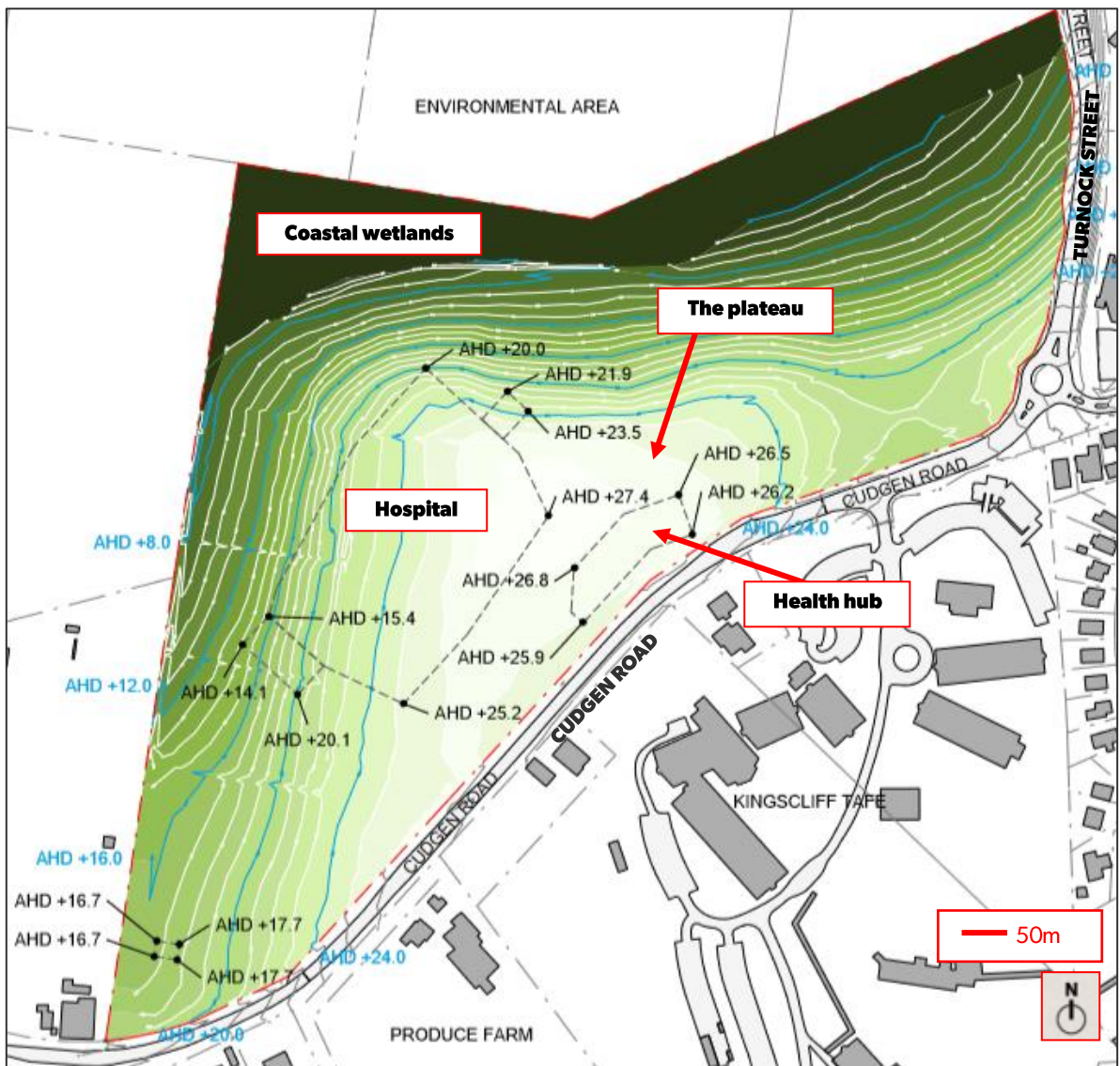
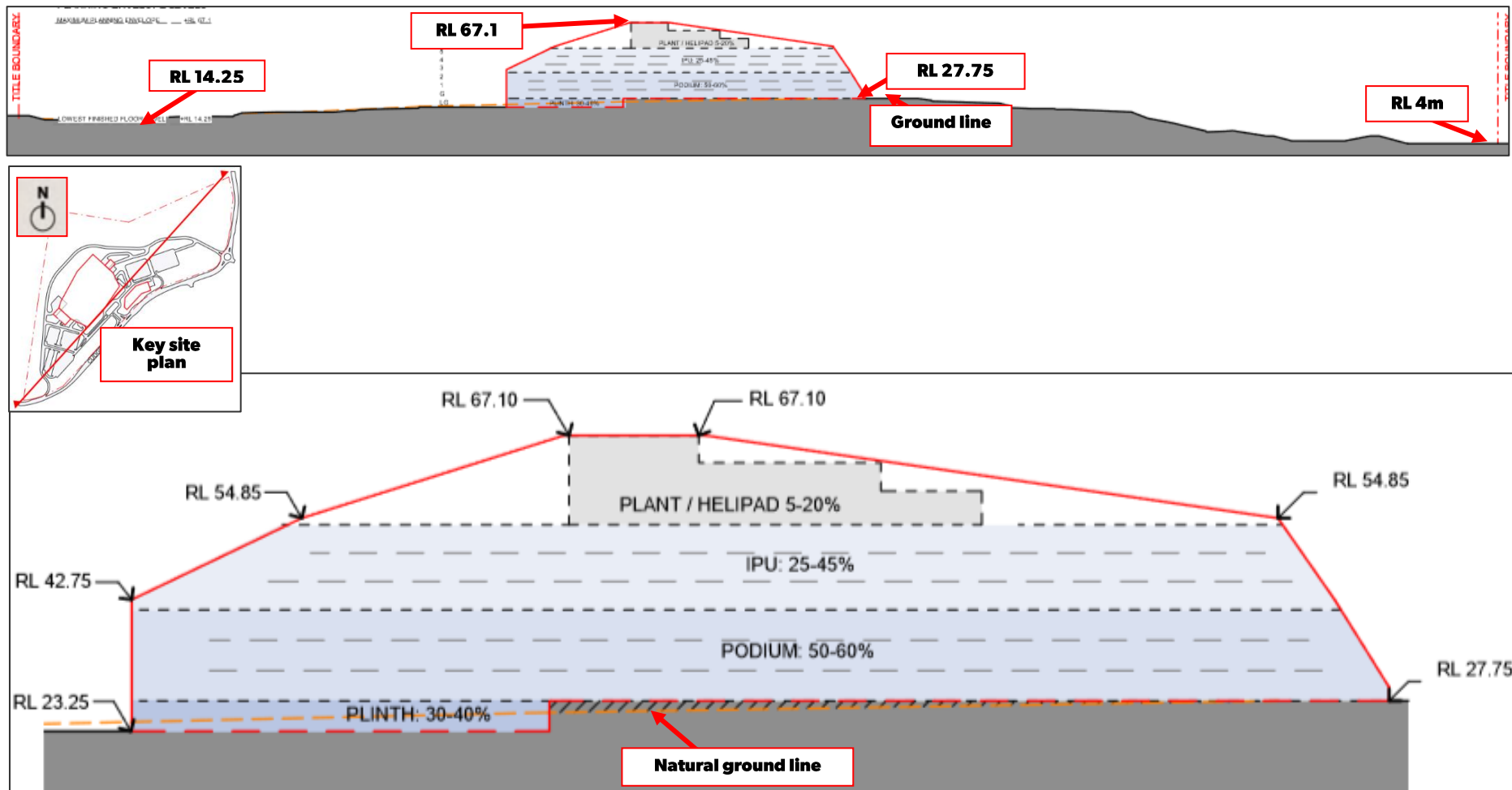
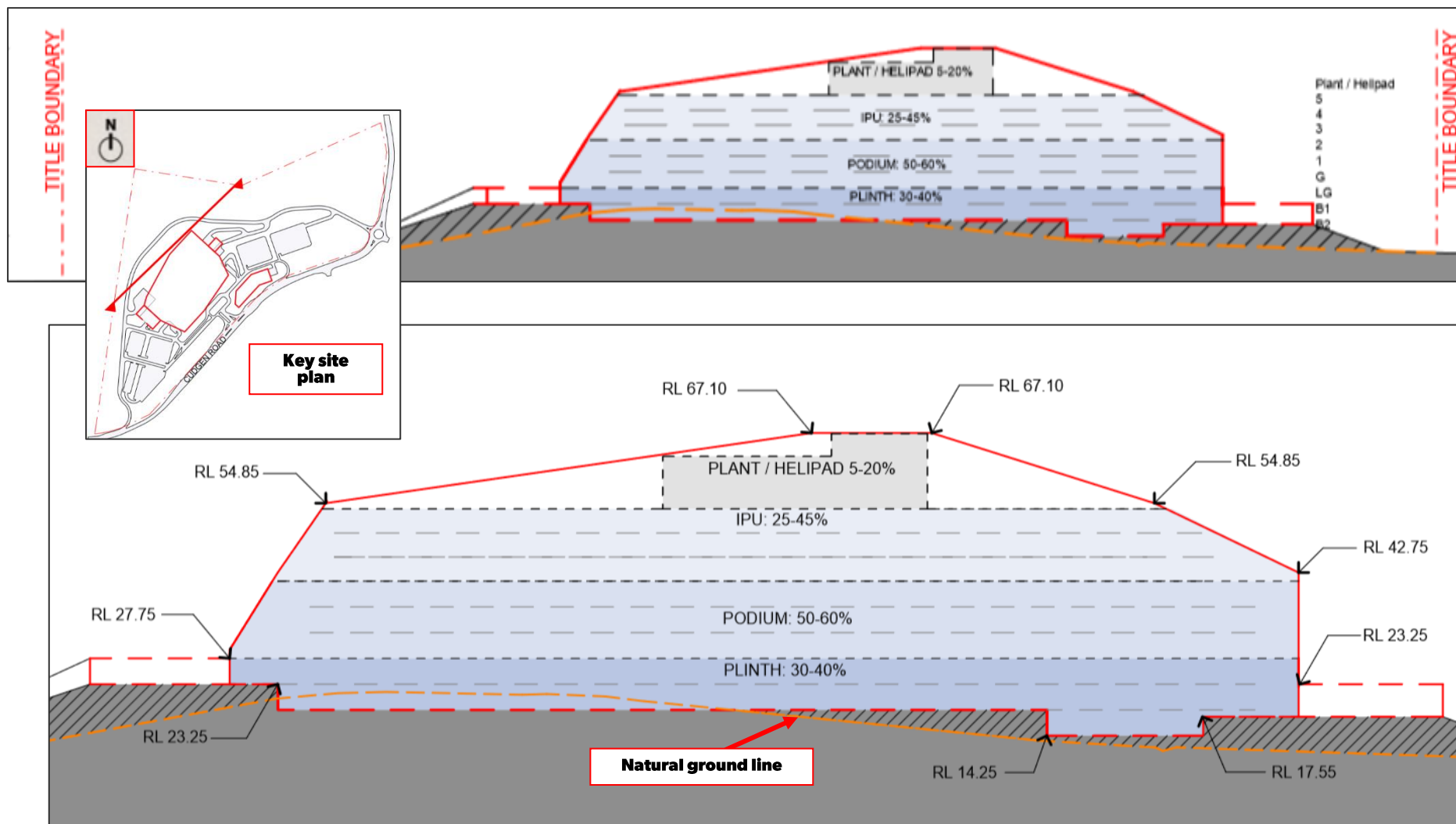


Figure 11 | The site topography and relative location of the building envelope (Source: Applicant's RtS)





2.2 Stage 1 Early and Enabling Works

The extent of Stage 1 works is identified in **Figure 14**.

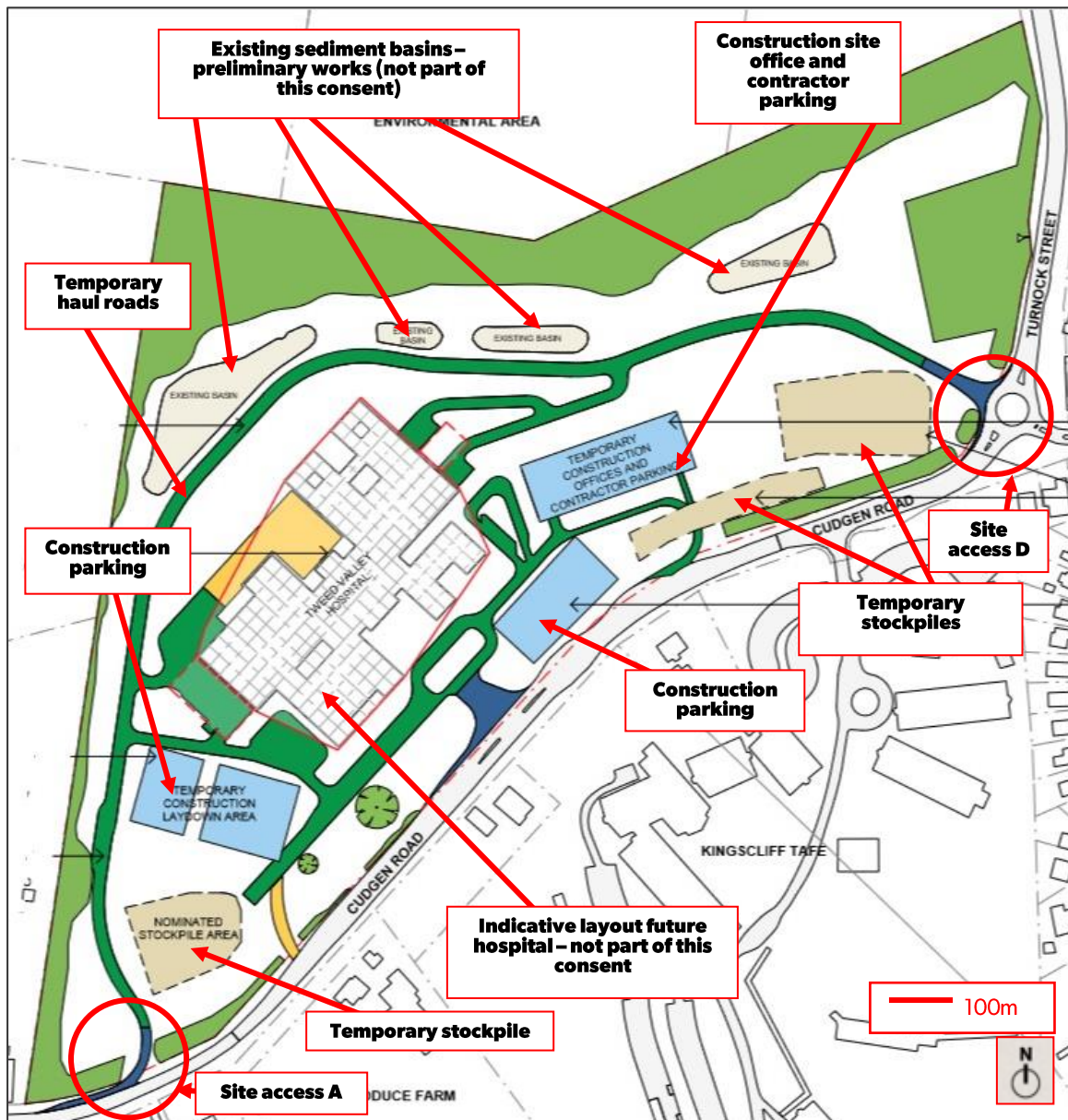


Figure 14 | Extent of Stage 1 works with indicative building layout and existing sediment basins (Source: Applicant's SRTs)

2.2.1 Construction compound

The construction compound with the temporary parking, laydown areas and sealed areas accommodating construction offices / construction workers' parking areas are identified in **Figure 14**. Temporary sealed haul roads (internally within the site) would be constructed within the site to enable vehicular movement. The location of the internal haul roads and sections of the contractor parking areas / laydown would generally align with the future car parks access roads in association with the future hospital.

2.2.2 Site access points and roadworks

The two new site access points (access A and access D) would be created as part of the Stage 1 works. The associated roundabout improvement works, and roadworks are detailed in **Table 1** and identified in **Figure 14**.

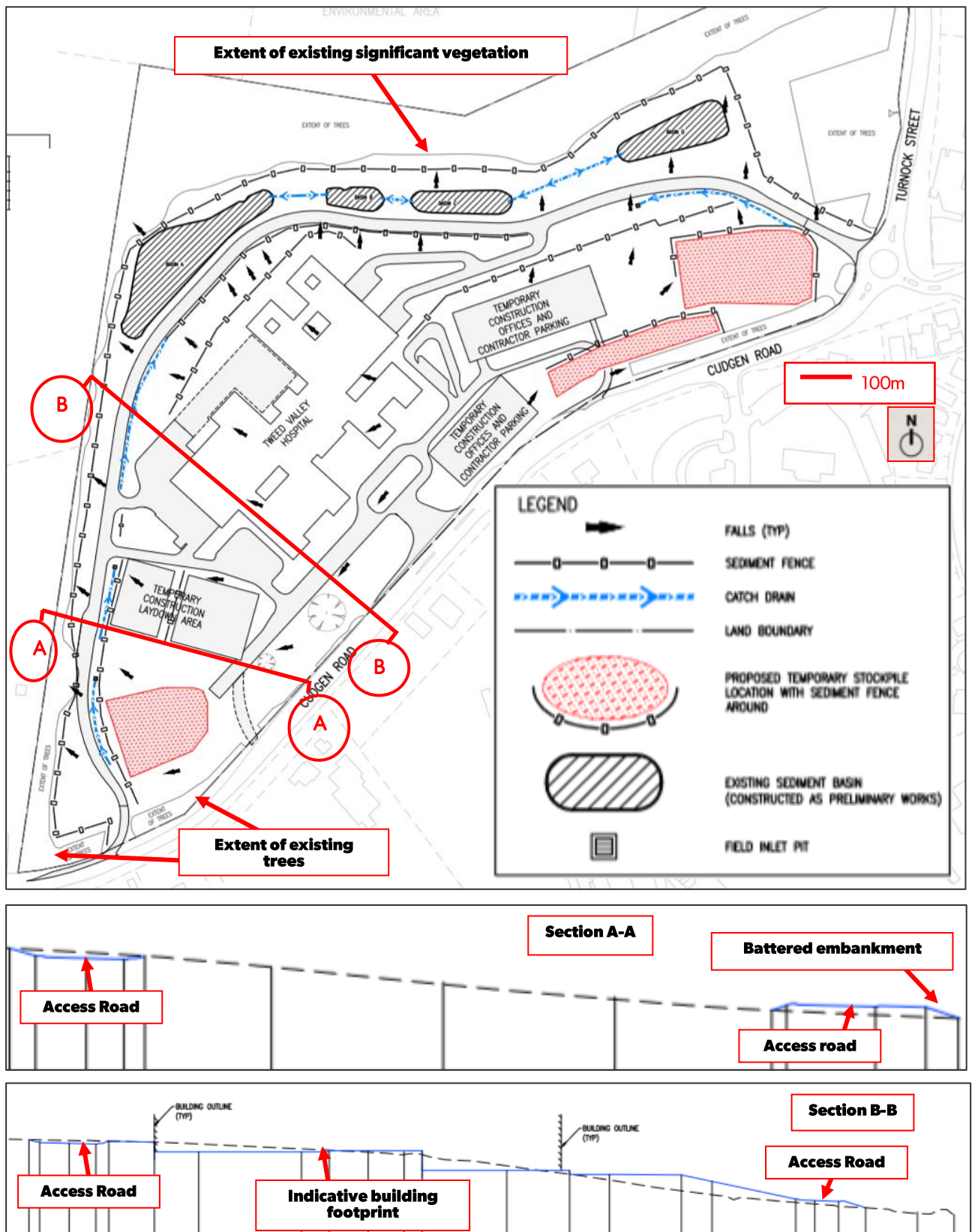


Figure 15 | Stormwater management plan, erosion sediment control measures and typical sections through the site identifying retaining walls (Source: Applicant's SRTs)

2.2.3 Bulk earthworks, piling and retaining walls

The Stage 1 works would involve bulk earthworks (cut and fill) throughout the site, to establish site levels and future building platforms. The earthworks would result in approximately 45000m³ of excess spoil (cut material). The SRtS indicates that this excess spoil is to be stored on the site as temporary stockpiles (**Figure 14**). The early works would also include on site crushing of the boundaries following excavation, for reuse in the building works.

The bulk earthworks would involve construction of retaining walls to support the established site levels. The RtS notes that the maximum height of retaining walls would be restricted to 3.4m. A 30-degree battered embankment is proposed on the western boundary of the site to support the access road (**Figure 15**).

2.2.4 Soil, water and stormwater management

Stage 1 works would involve the installation of soil and water management measures. Catch drains and stormwater pipes are proposed to discharge sediment laden waters into the existing basins for treatment and then to the coastal wetlands. The stormwater management measures are identified in **Figure 15**.

2.3 Stage 2 application

The Applicant proposes to lodge a separate application for Stage 2 works, which would comprise the detailed design and operational parameters for the future hospital in association with the detailed site plan, landscaping, intersection upgrades, roadworks and details of the helicopter operations.

The Stage 2 application would be informed by the design guidelines and functional parameters proposed under the Concept Proposal. The EIS notes that upon completion of the TVH, all facilities within the TTH would be relocated to this site.

2.4 Timing

The Applicant's EIS states that the Stage 1 Early and Enabling Works to be undertaken in mid - 2019 for a period of approximately 10 months (excluding shutdown periods).

The hospital construction is proposed to be completed by 2022, subject to lodgement and approval of the Stage 2 application for the detailed design and construction of the hospital and ancillary facilities.



3. Strategic Context

3.1 Need for the project

Northern NSW is one of the fastest growing regions in the State, with Tweed and Byron LGAs the fastest growing areas in NNSW LHD. The population of Tweed and Byron LGAs is expected to grow by 24 per cent in 2031 including 8–10 per cent growth for the number of children in addition to a demographic trend of an ageing population.

The EIS identifies gaps between the future demand for healthcare services and the supply, accessibility and availability of services locally within the Tweed Valley. With the projected population growth in the region, the draft 2018 Service Statement (which identifies service requirement projections to 2031) produced by NNSW LHD identifies service demand for health services to be beyond the previous forecasts, in the earlier Clinical Services Plan. The EIS states that the future health services in the region must accommodate the current and growing demand, with a long-term plan for opportunities to expand in the future, to meet the service demands in 2031 and beyond.

Based on the above background for the need to expand the health services in the region, the Applicant has identified the following constraints with regard to the existing Tweed Hospital (TTH), being the major non-metropolitan Level 5 referral hospital serving the Northern NSW:

- TTH is located at the far north of the Tweed LGA, which is not equidistant to all parts of the Tweed - Byron population, specifically for the southern part of Tweed Shire.
- this location increases the distances for the transfers from the lower level Byron Central or Murwillumbah District Hospitals.
- the TTH site is approximately two to three metres below the PMF level, with constrained access during a major flooding event, in particular, for the southern coastal population.
- the location of the TTH and lack of facilities have resulted in overlap of use of health services between NSW and Queensland, which is not considered to be ideal.
- capacity constraints, and facilities that are not consistent with modern standards such as Australasian Health Facility Guidelines, restrict the NNSW LHD's ability to implement new models of care in the hospital.

In response to the above problems regarding health services facilities in the region and the constraints of the TTH, the NSW Government announced a new state-of-the-art hospital on a greenfield site for the Tweed and Byron Shire LGAs, on 13 June 2017. The EIS includes a detailed 'alternative option analysis' to justify the need for a new hospital in the region, as summarised below:

- **Option 1:** Do nothing – this option was considered inappropriate due to the existing shortcomings of the TTH and the need for modernised and expanded health services in the region. In this scenario there would be a shortfall of services by 2031, to the extent that almost 13,000 overnight patients per year would not be able to receive treatment at the TTH or the Murwillumbah District Hospital.
- **Option 2:** Refurbishment and expansion of TTH – this option has been analysed in detail in the EIS and the results are summarised below:
 - master planning studies to redevelop TTH were conducted in 2013 and 2016. Both studies concluded that the re-use of existing building stock (built between 1972 and 2007) and expansion or new building opportunities would be limited due to lack of available space.

- o masterplans were reliant on a staged build and decant program and noted challenging operational issues during the lengthy construction program including noise; vibration; and access restrictions
- o in 2018, a separate program of interim upgrades at TTH (referred to as 'Holding Works') commenced. The refurbishment works revealed various shortcomings of the hospital building which have reinforced the conclusion that refurbishment works to increase capacity at TTH would be challenging in the long term.
- o the site for TTH sits below the PMF level. Major redevelopment of TTH would be contingent on an engineered solution to build critical hospital infrastructure above the PMF in accordance with the current State policies. This would result in vehicle ramps, elevated ambulance / access decks as well as a multi - deck carpark with a bridge.
- o recent studies were undertaken regarding expansion of the hospital by acquiring land around the existing hospital (e.g. Tweed Heads Bowls Club). While this option is considered feasible, it would result in significant project cost that would detract from expenditure on necessary clinical services.

The Applicant concludes that redevelopment of the TTH site in stages is feasible but would result in significant delays to deliver the new facilities and services in addition to major project cost. The community within the catchment would experience longer waiting times for health services and would continue to need to travel to southern Queensland to access healthcare services whilst the staged development was undertaken. Consequently, this option has not been adopted.

- **Option 3:** New hospital – the option to build a new hospital on a greenfield site in a strategic location offers the best opportunity to develop a purpose-built, high standard health facility that can be tailored for both current and future needs within the region. The masterplan and hospital design would include opportunities for future reconfiguration, expansion, enhancement and potential consolidation of services over time. The new health services would result in over five thousand patients accessing this hospital every year by 2031, in lieu of travelling interstate.

The Department notes that Applicant has undertaken a comprehensive site selection process to identify a suitable site for Option 3. The site selection process and a summary of the assessment sites is provided in the Site Selection Summary Report published on the Tweed Valley Hospital Project website.

The community submissions support the need for a hospital in the area. However, a large section of the community has raised concerns over the options analysis which led to the decision of constructing a new hospital in a greenfield site in lieu of the extension or refurbishment of the TTH. Public submissions have also raised concerns regarding the social and economic impacts such as relocation of the existing hospital.

While recognising the level of community concerns regarding the 'alternative options analysis' leading to the proposal on the site, the Department concludes that the proposal is justified in relation to the functional improvements and the health services need in the area. It would also allow appropriate transfer of the facilities from TTH to the site with no delays in the delivery of necessary health services. The Department is also satisfied that the proposal responds to the strategic framework of NSW, as discussed below. The site selection, the impacts of the propose relocation of the facilities from TTH to TVH and the proposed uses of the TTH site are discussed and addressed in detail in **Section 6**.

3.2 Compliance with the relevant strategic plans

The North Coast Regional Plan 2036 (NCRP) provides a blue print for development on the North Coast for a 20-year planning horizon. While it does not provide site specific information to support planning decisions, it does set goals and directions to guide land use planning, development proposals and infrastructure funding decisions.

The Northern Rivers Farmland Protection Project 2005 (Farmland PP) seeks to protect agricultural lands within NSW from urban and rural residential developments, by mapping identified farmland and developing planning principles in relation to these matters. The southern part of the site is identified as SSF in the Farmland PP and as BSAL in the Mining SEPP. Pursuant to section 9.1(2) of the EP&A Act, Local Planning Direction No. 5.3 (Farmland of State and Regional Significance on the NSW Far North Coast) sets out directions to protect the SSF identified in the maps appended to the Farmland PP. However, Direction No. 5.3(5) states that a planning proposal may be inconsistent with the terms of this direction only if it is consistent with the NCRP and the Farmland PP.

During the exhibition of the EIS, significant concerns were raised by the community regarding the consistency of the proposed development with the directions of the NCRP and the Farmland PP.

In the light of the above, the Department has assessed the consistency of the proposal against the relevant provisions of the NCRP and the Farmland PP below.

NCRP and Farmland PP

In accordance with section 4(9) of the Farmland PP, public infrastructure is permitted on land mapped as SSF where no feasible alternative is available. The Submissions Summary Report published by the Department in relation to the rezoning of the site, acknowledged that the site-selection process undertaken by the Applicant considered the feasibility of alternative locations and confirmed the suitability of the site for the proposed facility. The Department considered that the proposed zoning of the site was consistent with the Farmland PP and rezoned the land.

Directions 5 and 6 of the NCRP seeks to develop successful centres of employment, recognising that health and education sectors would continue to deliver important services and sustain employment growth. The proposed development complies with the goal for “a thriving, interconnected economy” and the relevant directions in this regard as it is a significant investment in public infrastructure and would have a flow-on effect into the growth of the regional economy.

Directions 11 and 12 of the NCRP contain actions to protect and enhance productive agricultural land and grow agribusiness across the region. The proposed development would not be consistent with these directions as it would result in the change of use of agricultural land into a “health services facility”. However, the Department notes that these directions also include an action to review the consistency, methodology and application of the Farmland PP to establish consistent standards for important farmlands in the North Coast. As noted above, the Farmland PP includes considerations for the use of SSF for public infrastructure where no feasible alternative is available. As such, the consistency of the proposed use with the actions and directions of the NCRP and the need for further reviews have been considered by the Department during the rezoning of the site.

The impact of the proposal on the agribusiness in the region are discussed in **Section 6**.

The Department recognises that if the application is approved, then the future use of the land needs to be incorporated into Council’s wider planning process for the locality and the region. Future development of the draft KLP by Council, in consultation with the local community, would assist in balancing demand for growth with the desire to retain the local character of Kingscliff. If approved, the next review of the NCRP would also need to acknowledge the location of the hospital.

The Tweed Regional City Action Plan identified under Action 7.1 of the NCRP would consider opportunities to encourage investment in renewal of the Tweed city centre to generate employment opportunities and housing diversity in proximity to existing business, community services and infrastructure. This process would be further complimented by the development of a Local Strategic Planning Statement for the Tweed area and both processes will seek engagement with the Tweed community.

The Department considers that the proposal is consistent with the majority of strategic planning objectives and policies as:

- it is consistent with the NSW State Priorities to deliver health infrastructure for an ageing population, improve service levels in hospitals through the construction of new health facilities, and the creation of jobs during both the construction and operation phases of the development.
- upon completion of Stage 2, the TVH would provide additional overnight beds, day only beds, emergency department beds and integrated Ambulatory consult / procedure beds. The TVH would also include additional medical facilities, currently not available to the community in the region.
- it is consistent with Direction 6 of the NCRP, relating to the healthcare and education sectors continuing to deliver important services and sustain employment growth.
- it is consistent with Infrastructure NSW's Building the Momentum State Infrastructure Strategy 2018 – 2038 as it would continue investment in health infrastructure to support a growing and ageing population and enable the delivery of modern health infrastructure that would support improved health outcomes for the people of regional NSW.
- it is consistent with Transport for NSW's Future Transport Strategy 2056, as it provides improved health facilities within a regional strategic centre, which would support its role as a regional hub for employment and services.
- it would provide direct investment in the region of approximately \$471 million, which would support 2700 jobs across Stage 1 early enabling works and the Stage 2 construction, and a minimum of 208 new operational jobs which is projected to increase in accordance with the service line.



4. Statutory Context

4.1 State significant development

The proposal is SSD under section 4.36 of the Environmental Planning and Assessment Act 1979 (EP&A Act) as the development has a CIV in excess of \$30 million (\$471 million) and is for the purpose of a hospital under clause 14(a) of Schedule 1 of State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP).

The Minister is the consent authority under section 4.5 of the EP&A Act. In accordance with the then Minister for Planning's delegation to determine SSD applications, signed on 11 October 2017, the Executive Director, Priority Projects cannot determine this application as:

- the relevant Council has made an objection.
- there are more than 25 public submissions in the nature of objection.

The Application is referred to the Minister for determination, as the Applicant is a public authority.

4.2 Permissibility

At the time of lodgement of the EIS, the site was zoned RU1 Primary Production and R1 General Residential under the Tweed Local Environmental Plan 2014 (TLEP 2014), and DM Deferred Matter under the Tweed Local Environmental Plan 2000 (TLEP 2000). The proposed development is prohibited within a RU1 zone. State Environmental Planning Policy Amendment (Tweed Valley Hospital) 2019 (SEPP) amended the Tweed LEP 2014 on 22 February 2019, by rezoning part of the site from RU1 and R1 to SP2 Infrastructure (Health Services Facility).

Figure 16 provides a comparison of the previous zoning and the amended zoning of the site.

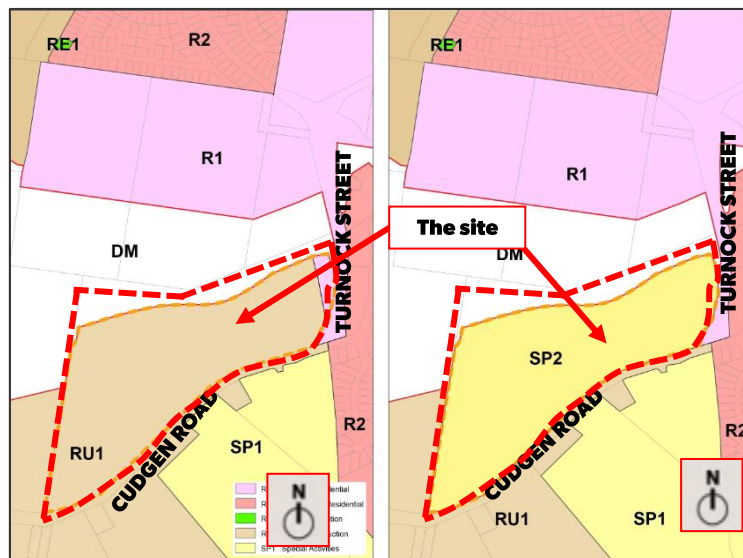


Figure 16 | Comparison of previous zoning (left) and rezoned areas (right) (Source: DPE)

The proposed development is wholly located within the SP2 zone. The land use, defined as “health services”, is permissible within the SP2 Infrastructure zone with development consent.

Therefore, the Minister for Planning or a delegate may determine the carrying out of the development.

4.3 Other approvals

Under section 4.41 of the EP&A Act, a number of other approvals are integrated into the State significant development approval process, and consequently are not required to be separately obtained for the proposal.

Under section 4.42 of the EP&A Act, a number of further approvals are required, but must be substantially consistent with any development consent for the proposal (e.g. approvals for any works under the Roads Act 1993). The Department has consulted with the relevant public authorities responsible for integrated and other approvals, considered their advice in its assessment of the project, and included suitable conditions in the recommended conditions of consent (see **Appendix E**).

4.4 Mandatory matters for consideration

4.4.1 Environmental planning instruments

Under section 4.15 of the EP&A Act, the consent authority is required to take into consideration any EPI that is of relevance to the development, the subject of the development application. Therefore, the assessment report must include a copy of, or reference to, the provisions of any EPIs that substantially govern the project and that have been taken into account in the assessment of the project. The Department has undertaken a detailed assessment of these EPIs in **Appendix B** and is satisfied the application is generally consistent with the requirements of the EPIs.

4.4.2 Objects of the EP&A Act

The objects of the EP&A Act are the underpinning principles upon which the assessment is conducted. The statutory powers in the EP&A Act (such as the power to grant consent / approval) are to be understood as powers to advance the objects of the legislation, and limits on those powers are set by reference to those objects. Therefore, in making an assessment, the objects should be considered to the extent they are relevant. A response to the objects of the EP&A Act is provided at **Table 2**.

Table 2 | Response to the objects of section 1.3 of the EP&A Act

Objects of the EP&A Act	Consideration
(a) <i>to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State’s natural and other resources</i>	• The development application involves the use existing agricultural land to meet the increasing demand for healthcare services within the Tweed-Byron region for the social welfare of the community and State. • The improved health care facilities provide significant social and economic benefits to the community. • The proposal would provide for increased employment opportunities. • The development would not negatively impact on the economic welfare of the community. • The proposal has been designed to minimise impacts to the State’s natural and built resources where possible, and includes measures to offset the loss of agricultural land within the region.

(b) <i>to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,</i>	The proposal includes measures to deliver ecologically sustainable development which are considered in Section 4.4.
(c) <i>to promote the orderly and economic use and development of land,</i>	- The proposal would deliver orderly and economic use of land as it would be developed on generally cleared land, retaining the identified significant vegetation to the north of the site. The proposal would also not have a significant negative impact on the agricultural use of the land or the region as discussed in Section 6. - The proposal will be of economic benefit through job creation and infrastructure investment. - By staging the development approval of the proposed hospital, this application provides for the orderly and economic planning of the new hospital and the site in accordance with established planning parameters, whilst also allowing the Stage 1 works to commence and facilitate the delivery of the new hospital in a timely manner.
(d) <i>to promote the delivery and maintenance of affordable housing,</i>	Not applicable.
(e) <i>to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,</i>	- The proposed Stage 1 works would result in the removal of approximately 150 trees from the site. - The proposal would be undertaken within a modified and disturbed environment and would not negatively impact on biodiversity values of threatened species of native animals and plants, ecological communities and their habitats. These matters are considered in Section 6.
(f) <i>to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),</i>	- The site is not identified as a heritage item in an environmental planning instrument or under the Heritage Act 1977. - The Concept Proposal and Stage 1 works would have a negligible impact on European Heritage, Archaeological relics or Aboriginal Cultural heritage associated with the area. These matters are considered in Section 6.
(g) <i>to promote good design and amenity of the built environment,</i>	The proposal provides built form and urban design guidelines which establish the framework for the future detailed design of the hospital and the

	support building to promote good design and amenity. The detailed design of the new hospital would be guided and informed by the established design parameters of the Concept Proposal. • The Concept Proposal promotes good design being consistent with the submitted urban design principles as detailed in Section 6.
(h) <i>to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants,</i>	• The Concept Proposal does not include any construction works. • The proposed Stage 1 works would promote proper methods and would ensure safety of the workers and the surrounding users subject to recommended conditions of consent in Appendix E.
(i) <i>to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,</i>	• The Department publicly exhibited the proposal as outlined in Section 5.1, which included consultation with Council and other public authorities, and consideration of their responses as discussed in Sections 5.1 and 6.
(j) <i>to provide increased opportunity for community participation in environmental planning and assessment.</i>	• The Department publicly exhibited the proposal as outlined in Section 5.1, which included notifying adjoining landowners, placing a notice in newspapers and displaying the proposal on the Department's website and at Council during the exhibition period.

4.4.3 Ecologically sustainable development

The EP&A Act adopts the definition of ecologically sustainable development (ESD) found in the *Protection of the Environment Administration Act 1991*. Section 6(2) of that Act states that ESD requires the effective integration of economic and environmental considerations in decision-making processes and that ESD can be achieved through the implementation of:

- the precautionary principle.
- inter-generational equity.
- conservation of biological diversity and ecological integrity.
- improved valuation, pricing and incentive mechanisms.

The EIS includes an ESD framework and provides a strategy to ensure that the future development is designed to consider and reflect national best practice building principles to improve environmental performance and reduce ecological impact. The design principles are summarised below:

- reduce energy demand through passive conditioning techniques and reuse of materials to limit waste.
- use energy and water efficient equipment to reduce energy consumption.
- design for cycle paths to encourage staff cycle to work.
- use materials from sustainable sources (where available), including renewable and recycled materials.

The EIS acknowledges that the Stage 1 works primarily relate to bulk earthworks and site establishment. Notwithstanding the EIS proposes the following ESD initiatives:

- a balance of cut and fill and re-use the excess spoil on the site.
- appropriate sediment control measures to reduce impact on water quality of the receiving waters.
- use of locally excavated rock to construct the base of the road.
- material selected for installing hydraulic services to be based on current best practice solutions.

The community submissions have raised concerns that the proposal does not sufficiently consider the ESD principles, in particular, inter-generational equity as it would result in the loss of SSF and therefore compromise the ability of the future generations to meet their own needs through the loss of agricultural land. In its response to the submissions, the Applicant has advised that the principles of ESD were considered in the EIS, including intergenerational equity. The marginal loss of SSF on the urban fringe is deemed to be acceptable based on the proposed provision of the critical infrastructure and the offset measures.

The Department has considered the proposed development in relation to the ESD principles. The precautionary and inter-generational equity principles have been applied in the decision-making process via a thorough and rigorous assessment of the environmental impacts of the proposed development and addressed in **Section 6**. The proposed development is consistent with ESD principles and other policies as described in section 5.8 of the EIS, which has been prepared in accordance with the requirements of Schedule 2 of the Environmental Planning and Assessment Regulation 2000 (EP&A Regulation).

Overall, the proposal is consistent with ESD principles and the Department is satisfied the proposal would encourage ESD, in accordance with the objects of the EP&A Act. The Department recommends that the future application for Stage 2 demonstrate: how the principles of ESD have been incorporated in the future development; how the future development addresses projected climate change impacts; and provide a framework to address national best practice sustainable building principles to improve environmental performance and reduce ecological impact.

4.4.4 Environmental Planning and Assessment Regulation 2000

Subject to any other references to compliance with the EP&A Regulation cited in this report, the requirements for Notification (Part 6, Division 6) and Fees (Part 15, Division 1AA) have been complied with.

4.4.5 Planning Secretary's Environmental Assessment Requirements

The EIS is compliant with the Planning Secretary's Environmental Assessment Requirements (SEARs) and alongside the Response to Submissions Report and additional information provided by the Applicant (refer to **Appendix A**) is sufficient to enable an adequate consideration and assessment of the proposal for determination purposes.

4.4.6 Section 4.15(1) matters for consideration

Table 3 identifies the matters for consideration under section 4.15 of the EP&A Act that apply to SSD in accordance with section 4.40 of the EP&A Act. The table represents a summary for which additional information and consideration is provided for in **Section 6** and relevant appendices or other sections of this report and EIS, referenced in the table.

Table 3 | Section 4.15(1) matters for consideration

Section 4.15(1) Evaluation	Consideration
(a)(i) any environmental planning instrument	Complies. The Department's consideration of the relevant EPIs is provided in Appendix B .
(a)(ii) any proposed instrument	Complies. The Department's consideration of the relevant draft EPIs is provided in Appendix B .
(a)(iii) any development control plan (DCP)	Under clause 11 of the SRD SEPP, DCPs do not apply to SSD.
(a)(iiia) any planning agreement	Not applicable.
(a)(iv) the regulations <i>Refer Division 8 of the EP&A Regulation</i>	The application satisfactorily meets the relevant requirements of the EP&A Regulation, including the procedures relating to applications (Part 6 of the EP&A Regulation), public participation procedures for SSD and Schedule 2 of the EP&A Regulation relating to EIS.
(a)(v) any coastal zone management plan	The application satisfactorily meets the relevant development controls of the Coastal Management SEPP as discussed in Section 6 and Appendix B .
(b) the likely impacts of that development including environmental impacts on both the natural and built environments, and social and economic impacts in the locality	Appropriately mitigated or conditioned – details are discussed in Section 6 .
(c) the suitability of the site for the development	The site is suitable for the development as discussed in Sections 4 and 6 .
(d) any submissions	Consideration has been given to the submissions received during the exhibition period - discussed in Sections 5 and 6 .
(e) the public interest	The proposal is in the public interest - discussed in Section 6 .

4.4.7 Biodiversity Conservation Act 2016

To address the biodiversity impacts associated with the Concept Proposal and Stage 1 works, the RtS and SRtS include a Biodiversity Development Assessment Report (BDAR) prepared in accordance with the Biodiversity Assessment Method (OEH 2017) (BAM) complying with the requirements of the *Biodiversity Conservation Act 2016* (BC Act). The BDAR and Department's assessment of the biodiversity impacts of the proposal are considered in **Section 6.3**.

The Department's assessment of the biodiversity impacts resulting from the proposal is satisfactory subject to the implementation of the relevant mitigation measures and recommended conditions of consent.

4.4.8 Matters of National Environmental Significance

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 (MNES) 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.

The Applicant has submitted a MNES report which concludes that a referral to the Commonwealth under the EPBC Act is not required. The Department considers that the referral process is separate to the SSD application pathway and is a matter for the Applicant to consider. No further consideration in this regard is required, during the assessment of the SSD application.



5. Engagement

5.1 Department's engagement

In accordance with Schedule 1 of the EP&A Act, the Department publicly exhibited the application from 1 November 2018 until 13 December 2018 (43 days). The application was exhibited on the Department's website, at the NSW Service Centre, at Tweed Shire Council's offices at Tweed Heads and Murwillumbah and at Kingscliff Library.

The Department placed a public exhibition notice in the Tweed Daily News and Byron Shire Echo on 31 October 2018, and in Tweed Valley Weekly on 1 November 2018. The Department notified adjoining landholders and relevant State and local government authorities in writing. The Department again placed a public exhibition notice in the Tweed Daily News, Byron Shire Echo and Tweed Valley Weekly on 21 November 2018 and 22 November 2018 notifying the extension of advertising period up to 13 December 2018. The Department representatives visited the site on 29 January 2019 to provide an informed assessment of the development.

Following the exhibition of the application the Department placed copies of all submissions received on its website and requested the Applicant provide a response to the issues raised in the submissions. The Department has considered the comments raised in the public authority and public submissions during the assessment of the application (**Section 6**) and by way of recommended conditions in the instrument of consent at **Appendix E**.

5.2 Summary of submissions

The Department received 431 public submissions from 426 individuals and five organisations during the EIS exhibition. A total of 13 public authority submissions were also received including an objection from Tweed Shire Council. A summary of the total number of public authority and public submissions is provided at **Table 4** below and copies of the submissions may be viewed at **Appendix A**.

Table 4 | Summary of submissions

Submitters	Number	Position
Public Authority	12	
• Roads and Maritime Services	√	
• Transport for New South Wales	√	
• Environment Protection Authority	√	
• Heritage Division, Office of Environment and Heritage	√	Comment
• Water NSW	√	
• TAFE NSW	√	
• Office of Environment and Heritage	√	

• Department of Industry	✓	
• NSW Rural Fire Service	✓	
• Gold Coast Airport Authority	✓	
• Air Services Australia	✓	
• Civil Aviation Safety Authority	✓	
Tweed Shire Council	1	Object
Special Interest Groups and Organisations	5	Object
Community (individual submissions excluding duplicates and multiples)	426	
	397	Object
	27	Support
	2	Comment
TOTAL	444	

A breakdown of the public submissions (not including public authority submissions) relation to their distance from the site (approximate) is provided in **Table 5**.

Table 5 | Approximate distance of the location of submitters from the site

Distance from the site	Number	Percentage
• <1 km	86	19.9%
• 1km – 5km	84	19.4%
• > 5km	258	59%
• Unknown location	3	0.69%
Total	431	(426 individual and 5 organisations)

5.3 Public authority submissions

A summary of the issues raised in the public authority submissions is provided at **Table 6** below and copies of the submissions may be viewed at **Appendix A**.

Table 6 | Summary of public authority submissions to the EIS exhibition

Tweed Shire Council (Council)
Council objects to the proposal on the following grounds:
• destruction of SSF for hospital purposes.
• Inconsistency with NCRP which prohibits developments on SSF, where other feasible options exist.
Council provided comments in relation to:
• agreement between the Applicant and Council on water and sewer connections and roadworks.

- alignment of the proposed intersection upgrade works with Council's plans to upgrade the road network.
- providing economic demand analysis to justify the rates of on-site parking and the impacts.
- additional bicycle parking facilities and modification of the driveway entrance on the western side.
- provision of a design that responds to the recommendations of the State Design Review Panel (SDRP).
- a broader assessment of the visual impact of the proposed development.
- requirement of further details in relation to urban design, interface design and sustainability.
- additional options representing stronger landscape integration in lieu of the proposed tower built form.
- further details of internal connections, road network, shared paths, bus stops, covered walkways.
- further detail in regard to accessibility, transport, public safety, anti-social behaviour, external patient and carer accommodation, and relationship with other ancillary social service providers in the area.
- further details regarding future stages of the development with a possible masterplan for a mix of land uses including health and allied services in consultation with the local community.
- requirement for additional soil assessment (including soil samples and classification).
- development of agricultural support program to offset the impacts of loss of SSF.
- provision of landscape buffers from the surrounding agricultural uses.
- co-location of or linkages to existing ancillary health related social services in the region.
- provision of a 50m buffer from the wetlands to the north of the site.
- outdated plans in the Aboriginal heritage assessment landscape analysis restricted to less than 1km from the periphery of the site.
- requirement for a more detailed evaluation of the European heritage in the area.
- additional assessment of site suitability having regard to soil contamination.
- more detail of the sedimentation pond design, clarification regarding the drainage models, water sensitive techniques and confirmation of the lawful point of discharge for the stormwater.
- noise and vibration impact due to construction and future operation of the development.

Additionally, Council recommended the following:

- a landscape plan be provided in relation to the proposed intersection upgrade works.
- an air quality management plan be provided to address the impacts of dust during construction works.
- a dewatering management plan be provided in consultation with Council.
- details of hydraulic services and water tank for firefighting purposes be provided.

Heritage Division, Office of Environment and Heritage (Heritage Division)

The Heritage Division provided comments and conditions in relation to:

- retention of and / or interpretation of the five dry stone walls on the site.
- development of unexpected finds procedures to manage any historical archaeological works or relics discovered during the Stage 1 construction works.

Office of Environment and Heritage (OEH)

OEH raised concerns in relation to:

- the adequacy of the original BDAR and BAM supporting the EIS.
- lack of description of the prescribed impacts and the measures to avoid and mitigate these impacts.
- need for the provision of a Biodiversity Management Plan (BMP).

OEH recommended that:

- the areas of retained vegetation in the north of the development site that are coastal wetlands under the Coastal Management SEPP be appropriately rehabilitated and protected.
- adequacy of the bushfire protection measures be reassessed.
- the BDAR be revised if removal of additional vegetation is required for the Asset Protection Zone (APZ).

Environment Protection Authority (EPA)

EPA recommended the following:

- the impact of the construction noise and vibration on the surrounding sensitive receivers be considered and appropriate mitigation measures be provided in accordance with the EPA's guideline.
- construction-related activities be conducted within the recommended standard construction hours.
- mitigation measures be provided regarding sediment control to prevent water pollution.
- waste control and management measures be identified and implemented.
- details of design, installation and operation of the underground petroleum storage tank be provided.
- radiation shielding calculations be provided in accordance to EPA's guideline.

Roads and Maritime Services (RMS)

RMS provided comments in relation to:

- procedures regarding the traffic signal infrastructure works on local and classified road network.
- compliance of the pedestrian traffic signals on Cudgen Road with the RMS Traffic Signal Design.
- requirement of a 'Way Finding Signage' to direct traffic from the Pacific Highway to the hospital.

Transport for NSW (TfNSW)

TfNSW requested the following additional information:

- additional traffic modelling, considering a scenario with no upgrades to Tweed Coast Road.
- additional assessment of the public and active transport trips to be generated by the development.
- provision of a Green Travel Plan in consultation with TfNSW, and / or other local transport providers.
- detailed design of proposed bus stops and a site plan.
- assessment of potential impacts of the development on the on-street parking in surrounding streets.
- location of future bicycle facilities near the main entries to the site.

Water NSW

Water NSW raised no concerns with regard to the proposal.

NSW Rural Fire Services (RFS)

RFS requested that:

- surveying and delineation of the identified tree line be done prior to commencement of Stage 1 works.
- the identified APZ be managed as an inner protection area at the commencement of physical site works.

Department of Industry (Dol)

Dol raised the following concerns:

- the proposal being an unwanted precedent for development of land on agricultural resource.
- intensification of use of adjoining land for the purpose of health facilities, due to development of this site.
- inadequate assessment of soils, land capacity and impact of the loss of the agricultural resource.
- insufficient buffer width of 10m on the western and south-western boundaries.
- further change of use opportunities on adjoining land relying on the proposed urban use.

Dol recommended the following:

- development of strategies for increased agricultural production in the locality.
- avenues to utilise local produce as part of the hospital's food procurement.
- provision of water management plans.
- appropriate licenses be obtained in case the proposed excavation works intercept groundwater.

Civil Aviation Safety Authority (CASA)

CASA confirmed that proposed building height will not infringe the Obstacle Limitation Surface for Gold Coast Airport (GCA) and recommended the following:

- Airservices Australia be consulted as the site is close to GCA.
- helicopter operators and GCA be consulted at the design stage.

Airservices Australia (AA)

Airservices Australia raised no concerns regarding the proposal.

Gold Coast Airport Authority (GCA Authority)

GCA Authority provided the following comments:

- detailed site assessments and drawings against prescribed airspace surfaces to the GCA be provided.
- CASA regulations and standards should be considered.
- aircraft noise associated with helicopter operations should be considered and mitigated.
- wind data for Gold Coast could be sourced from several platforms for extrapolation and review.

TAFE NSW

TAFE NSW supported the proposal in principle and requested the following information / clarification:

- further consideration of intersection modelling of the Cudgen Road / TAFE access to reflect actual driver behavior, as well as network operation along with the nearby roundabout performance.
- the traffic generation rates adopted for the proposal should be further justified.
- clarification whether the proposed upgrades are suitable for a future medical precinct in the locality.
- car parking management and enforcement to consider impacts of parking infiltration into the TAFE site.

5.4 Public submissions

A summary of the issues raised in the public submissions is provided at **Table 7** below and copies of the submissions may be viewed at **Appendix A**.

Table 7 | Summary of the public submissions to the proposal

Issue	Proportion of submissions
Site is not suitable for the development, flawed site selection process with no consideration of alternative feasible sites including Kings Forest or refurbishment of TTH	84.68%
Loss of State Significant Farmland leading to adverse impacts on future food security	77.03%
Adverse traffic impacts, paid car parking leading to on-street parking and transport impacts	64.73%
Further development on surrounding farmland due to intensification of use	58.93%
Adverse impacts on the local character, culture and the amenity of the surrounding residents	58.7%
Adverse social and economic impacts and lack of consideration of community needs	56.61%
Adverse impacts on the community due to the relocation of existing Tweed Hospital	50.5%
Insufficient community consultation before and during the processing of the application	50.11%
Non-compliance with the existing development standards applicable to the site	48.72%
Adverse impacts to and from agricultural land use in the vicinity	47.09%
Constrained access to the site during flood	40.13%
Unacceptable impacts of rezoning of the site	29.4%
Adverse noise impacts due to the construction and operation of the facility	27.84%
Inconsistencies with North Coast Regional Plan 2036	26.45%
Adverse visual impact of the building due to excessive bulk and scale	22.27%
Adverse impacts on threatened species of flora and fauna on the site and inadequate consideration of ecological buffers	8.81%
Commencement of works on the site prior to granting consent	7.8%
Unsatisfactory built form not suitable for the site	7.42%
Adverse cumulative impacts of construction due on the locality due to noise / dust	6.03%
Inappropriate proposal for height of building development standard	5.33%
Inadequate documentation in the EIS	2%
Lack of sufficient details regarding the design of the building to demonstrate that all facilities can be accommodated within the site	1.62%
Inappropriate proposal to remove applicable floor space ratio development standard	1.16%
Inappropriate proposal to remove lot size requirements	0.92%
No consideration of the ESD principles	0.4%

5.5 Post exhibition submissions and consultation

Following the closure of the exhibition period, the Department received: three individual public submissions including two additional submitters; one submission from an organisation (previous submitter); and two community groups (one additional) objecting to the development. One submitter argued that the site historically accommodated a sheep / cattle dip and therefore the site is likely to have arsenic soil contamination. The submissions also indicated that there is inadequate assessment of Commonwealth listed species and referral requirements to the Commonwealth have not been complied with.

EPA lodged an additional submission after close of exhibition. The submission requested the applicant to conduct further assessment of arsenic contamination on the land with additional soil sampling as well as include additional site remediation measures, based on this assessment.

On 29 January 2019, the Department representatives visited the site and met with Tweed Shire Council representatives to discuss the primary issues and concerns in relation to the application as well as provide an overview of the SSD assessment process. The Department has actively engaged with the community through emails, letters and phone conversations answering enquiries and concerns relating to the proposal.

5.6 Response to Submissions and supplementary information

Following the exhibition of the application the Department placed copies of all submissions received on its website and requested the Applicant provide a response to the issues raised in the submissions.

On 4 February 2019, the Applicant provided a Response to Submissions (RtS) (**Appendix A**) on the issues raised during the exhibition of the proposal. The RtS outlined responses to the key issues raised in the submissions from both agencies and the public and amended the scope of the proposed works to include the following:

Concept Proposal

- a series of capacity and performance upgrades to the intersection of Cudgen Road and Tweed Coast Road.

Stage 1 works

- two new access points from Cudgen Road (west and east) and one additional sediment basin.
- associated intersection improvements to the roundabout at the Turnock Street / Cudgen Road intersection.
- site remediation works in accordance with submitted remediation measures.

The additional RtS documentation comprised:

- amended site boundary due to the land acquisition and subdivision.
- further response to the built-form and urban design concerns including:
 - amended footprint for the envelope with reduction in the density of the upper floors and the helipad.
 - amended levels for the building envelope with a defined uppermost level excluding the helipad.
 - amendments to landscaping, pedestrian connections, internal roads, retaining walls / embankments.
- soil investigation and remedial action plan.
- details of drainage work, traffic modelling and proposed upgrade works, aviation issues and other services.
- amended BDAR and assessment of impacts on coastal wetlands and biodiversity.
- applying standard construction hours and additional noise mitigation measures for Stage 1.
- clarification regarding vegetative buffers and further assessment of agricultural impacts.
- socio economic review to identify detailed opportunities and impacts including relocation impacts.

On 11 February 2019 and 19 February 2019, the Applicant provided supplementary Responses to Submissions (SRtS) (**Appendix A**) addressing concerns raised by the Department including the following:

- additional information and clarification regarding stormwater drainage and discharge points, retaining walls, stockpile heights, air quality impacts and dust management during Stage 1 works.
- amended drawings to reflect the scope of works in Stage 1 and Concept Proposal.
- a peer-review of the amended BDAR, a Site Audit Report and a Site Audit Statement.
- details of the existing drainage scenario, aviation information and updated mitigation measures.
- information regarding sealing of haul roads in Stage 1 and height / scale of concept retaining walls.

The RtS and SRtS (received in February 2019) were made publicly available on the Department website and was referred to the relevant public authorities. An additional nine submissions from public authorities including Council, several submissions from 10 individual submitters including two additional submitters and one organisation (previous submitter) were received by the Department in relation to the RtS and SRtS. A summary of the total number of submissions is provided at **Table 8**.

Table 8 | Summary of submissions to RtS

Submitters	Number	Position
Public Authority	8	
• RMS	√	
• TfNSW	√	
• EPA	√	
• Heritage Division	√	
• OEH	√	Comment
• DoI	√	
• NSW RFS	√	
• CASA	√	
Council	1	Object
Community (individual excluding duplicates and multiples)	10	Object
Organisation	1	Object
TOTAL	11	

Given that the submissions (both public authority and community) were received outside the statutory exhibition period, the Department has not placed these on the website. The Department has reviewed all submissions and requested the Applicant to respond to the additional matters raised in these submissions.

A summary of the issues raised in the submissions are provided in the following sections.

5.7 Public Authority RtS comments

A summary of the issues raised in the public authority submissions is provided at **Table 9**.

Table 9 | Summary of public authority submissions to RtS

Council

Council maintained its objections to the proposal due to loss of SSF and reiterated majority of the concerns raised in the earlier submission. Additionally, Council provided the following comments:

- the access A be redesigned to increase the safety of pedestrians at this location or alternatively access to the staff car park from access A be excluded to reduce the traffic volume and increase safety.
- bicycle facilities be provided on the existing shared user path along the Cudgen Road frontage.
- any variation to the proposed activities be supported by additional onsite car parking.
- directions be provided by NSW Government regarding the Tweed Valley Hospital Precinct study to inform the draft Kingscliff Locality Plan.
- outcome based agricultural offset policies and a long-term biodiversity management be provided.
- additional information be provided to detail the heritage significance of the dry-stone walls.
- the Aboriginal Cultural Heritage Assessment Report (ACHAR) be amended to acknowledge the potential impacts of the proposal on the aboriginal cultural values.
- further clarification be provided regarding the lawful point of discharge if the post development stormwater exceeds the pre-development stormwater flows.

OEH

OEH raised no further concerns regarding the revised BDAR, retention of vegetation or biodiversity management and recommended the following:

- additional water sensitive measures be incorporated to the stormwater drainage system for Stage 2, in consultation with OEH, to reduce impacts on the mapped coastal wetlands.
- the rezoning of the surrounding deferred areas to E2 Environmental Conservation Zone be initiated.
- fencing be excluded along the northern-boundary and be fauna friendly on all other boundaries.
- details of translocation for the relevant species be provided in the BMP.
- the surrounding coastal wetland areas be assessed as fully vegetated areas when calculating APZs.
- adequate APZs be provided within the site without impeding the future re-vegetation potential of the mapped coastal wetlands surrounding and within the site.

Heritage Division

Heritage Division raised no further concerns in relation to the proposal.

EPA

EPA maintained its concerns regarding the impacts of noise during the Stage 1 works and recommended the following to be undertaken prior to commencement of works on the site:

- further contamination assessment near the farm shed area, potential sheep dip structures (identified by Dol inspection of the site), farm dump areas and dam.

- further soil investigation to consider the potential for cattle or a sheep dip, contamination at depth or arsenic contamination in relation to use of tikisides prior to 1950s.
- amendment to the Remedial Action Plan to reflect the additional investigation results and actions.
- preparation of a Hazardous Materials Management Plan.
- preparation and implementation of contingency plans in case of unexpected finds during works.

TfNSW

- TfNSW provided no further comments and raised no concerns with regard to the proposal.

RMS

RMS raised no further concerns regarding the proposed development and recommended that the future traffic signals comply with the Roads and Maritime Traffic Signal Design Manual.

RFS

RFS raised concerns regarding the encroachment of the building footprint within the stipulated 50m APZ on the north-western side and sought clarification regarding the following:

- whether the bushfire report has considered potential unmanaged vegetation within the adjoining lot on the north-western side.
- whether the development can ensure that no entry or exit point to the hospital building is exposed to a radiant heat exposure of less than 10 kilowatt (K/W).

Dol

Dol supported the proposed agricultural offsets and the vegetative buffers, but maintained its concern regarding the loss of SSF, including the following comments:

- the proposed strategies for offsetting the loss of agricultural land be formalised in a statement of commitment by the Applicant to identify desired outcomes in this regard that can be achieved.
- provisions for land banking be explored if this land and the surrounding lands be rezoned from agricultural to other purposes in the future.
- opportunities for further engagement with the affected landowners be identified to mitigate the impacts during the various stages of the construction and operation of the future development.

CASA

CASA provided no further comments in relation to the proposal.

5.8 Public submissions to RtS and SRtS

A summary of issues raised in the public submissions to the RtS and SRtS (February 2019) are provided below:

- the site suitability and concerns regarding site selection not addressed satisfactorily in the RtS.
- inadequate feasibility option analysis for alternate sites including Kings Forest with no detailed cost report.
- loss and fragmentation of SSF due to the proposed development.
- potential intensification of use around the site reinforced by the recent sale of the adjoining land.
- unsatisfactory information regarding access to the site from the surrounding areas during flood.
- adverse impacts on the threatened species (flora and fauna) within the mapped coastal wetlands.

- adverse traffic impacts and inadequate traffic studies.
- safety concerns regarding landing of helicopter on the rooftop of a nine storey building not addressed.
- a buffer distance of 300m be provided between the proposed use and the adjoining farmland in accordance with the relevant guidelines.
- impacts on the character of the locality due to the proposed building height and form.
- inadequate community consultation, especially for the members of public with no access to internet.
- preliminary works carried out without consent encroaching into the mapped coastal wetlands area.
- works being carried out prior to remediating the site and inadequate APZ provisions.

One submission sought clarification regarding the method that the Department followed to publish submissions on the website, regarding the information of submitters on the website and the method of receiving, acknowledging and publishing submissions in relation to a proposed SEPP.

5.9 Further Supplementary information

Following comments received after the lodgement of the Rts, the Department requested the Applicant to address all additional matters raised in the submissions.

The Department also conducted a preliminary peer-review of the proposed drainage works by an independent consultant (Advice from Alluvium Consulting **Appendix C**). Following the peer-review, the Department sought clarification regarding the stormwater drainage works and impacts on the adjoining wetlands.

In response, the Applicant provided further SRts on 6 March 2019 including:

- addendum to agricultural information with details regarding sweet potato cropping.
- Additional analysis and modelling assessing the impacts of the proposed drainage works.
- addendum to bushfire report justifying the reduced APZ width at the north-western side of the site.
- information to justify the inclusion of piling works within the Stage 1 works.

5.10 Submissions after lodgement of SRts and the Applicant's responses

The SRts was made publicly available and referred to the relevant public authorities for comments. The public authority submissions to the SRts are summarised in **Table 10**.

Table 10 | Summary of public authority submissions to SRts

OEH

OEH raised concerns regarding the following:

- APZ to the north-western boundary is less than 50m. This suggests that the proposed APZ is partly located within the adjoining land to the north-west, which is mapped coastal wetlands.
- the provision of APZ within the adjoining land would be inconsistent with the Coastal Management SEPP.

RFS

RFS provided the following comments:

- the required 50m APZ should be location wholly within the property boundary and not rely on managed land on the adjoining property due to uncertainty of future uses.
- the entry or exit point to the hospital building should be located at a minimum distance of 49m to the north-western boundary, so that the building is not exposed to radiant heat exceeding 10K/W.

Dol provided the additional information regarding the sweet potato cropping in the Cudgen Plateau and requested that the assessment of agricultural impacts be undertaken based on the current cropping potential for the site.

The Department received several responses and objections from eight individual submitters, one organisation and one community group, in March and April 2019, following submission of the SRtS referred to in **Section 5.9**. The concerns primarily related to further intensification of use of adjoining land in the future due to the proposed rezoning of land and the resultant impacts on agricultural land in Cudgen. One public submission (from a previous submitter) raised concerns regarding the accuracy of the agricultural information submitted by the Applicant and specifically the sweet potato crop rotation. The submitter also enquired regarding the process of publishing information on the Department's website.

On 9 May 2019, the Applicant submitted further SRtS to address the additional matters raised in the comments from the community and the public authorities as well as concerns raised by the Department regarding the built-form, impacts of drainage works on the wetlands, and inconsistencies regarding the proposed intersection upgrade works in Stage 2. The SRtS included:

- amended building footprint location to achieve the APZ requirements.
- amended plans for Stage 1 including an indicative building layout, amended stockpile locations, haul roads and internal retaining walls.
- further agricultural information regarding sweet potato cropping.
- stormwater related information and review of the impacts of the drainage works by an ecologist.
- additional information regarding the scope of the proposed upgrade works at the Tweed Coast Road and Cudgen Road intersection and analysis (SIDRA modelling) of the performance of this intersection.
- removal of the additional sediment basin (proposed in the earlier RtS) based on additional drainage catchment calculations.

The Department referred the SRtS to RMS for review. In response, RMS identified the requirement for further works that are likely required within the Tweed Coast Road / Cudgen Road intersection to ensure better performance in the future. In response to this request the Applicant has advised in a SRtS dated 21 May 2019, that the matters in relation to a full scope of upgrade works can be addressed in detail as part of the Stage 2 application, in consultation with Council and RMS. The independent consultant appointed by the Department has reviewed the additional drainage information and has recommended conditions for Stage 1 and Stage 2.

The Department continues to receive on-going correspondence and submissions from previous submitters. Four submissions to the Department (from previous submitters), received in May 2019, raised concerns about the overall development, indicated that the proposed electrical substation would compromise the agricultural buffer, the proposed vegetative buffer is a bushfire hazard, APZ to the building are needed to the south and west, and that the impacts of the future expansion on surrounding land including possibilities for a 900-bed capacity hospital or further rezoning possibilities have not been adequately considered. Two individual pieces of correspondence to the Minister (including one additional submitter) have raised concerns on the impacts of the proposal on the locality and enquired about the adequacy of the planning process and the rezoning process.

The Department has addressed the matters raised in the community submissions in **Section 6**.



6. Assessment

The Department has considered the EIS, the issues raised in submissions, the RtS and SRtS in its assessment of the proposal. The Department considers the key issues associated with the proposal are:

- suitability of the site.
- built form and urban design.
- biodiversity impacts and coastal wetlands.
- traffic, transport and parking impacts.
- noise impacts.
- social and economic impacts.
- contamination.

Each of these issues is discussed in the following sections of this report. Other issues taken into consideration during the assessment of the application are discussed at **Section 6.8**.

6.1 Suitability of the site

The Department notes that the suitability of the site for the proposed development was the issue with the highest rate of public interest. The key issues of concern are discussed below.

6.1.1 Site selection process and alternate sites

Section 3 summarised the need for the project and the Applicant's analyses of feasible options, which concluded that a new hospital was required to cater for the catchment in the long term. The Applicant has chosen the site for the purpose of a new hospital after undertaking a comprehensive site selection process involving 50 alternative sites in the region. The site selection process and conclusions are summarised in the Site Selection Summary Report (SSSR) published on the Applicant's website. The SSSR includes an assessment of the following shortlisted alternative sites as well as the option to expand TTH: Chinderah Business and Knowledge Precinct; Kings Forest; Nos. 121 and 147 Tweed Coast Road; and No. 771 Cudgen Road.

During the exhibition of the EIS, the majority of the public submissions raised concerns over the site selection process, insufficient community consultation during this process and the inadequate assessment of feasible alternate sites, with specific reference to the alternate Kings Forest site preferred by some submitters.

In response, the RtS includes extracts from the SSSR reiterating the reasons for choosing the site at 771 Cudgen Road. Regarding the Kings Forest site, the RtS notes that the development of the Kings Forest precinct has not yet commenced.

Community submissions in response to the RtS maintained the concerns in relation to the site selection process and requested that the SSSR and the Independent Advisor's Report reviewing the adequacy of the SSSR be assessed by the Department.

While recognising the significant concerns raised by the community regarding the site selection process, the Department considers that the site selection process was undertaken by the Applicant prior to the lodgement of the SSD application. The EIS and the RtS include details of the comprehensive community consultation undertaken by the Applicant during the site selection process. The Department notes from the SSSR that both phases of the site selection process have been overseen by an Independent Probity Advisor, who stated that the process has been conducted in a fair and equitable manner.

with due regard to probity. A review of this report, as requested by the community, is outside the scope of assessment of the SSD application.

The Department has however assessed the suitability of the site for the proposed development in terms of the requirements under section 4.15 under the EP&A Act. The proposed development is permissible on the land with consent, and detailed assessment is set out in the following sections and against the applicable statutory instruments in **Appendix B**.

6.1.2 Flooding

The northern section of the site is subject to flooding with an existing regional Tweed River PMF level across the site at +8m AHD (**Figure 17**). The EIS includes a Flooding and Coastal Hazards Assessment (FCHA), which confirms that the proposed hospital footprint and the ancillary facilities including service roads would be located above the PMF level for the site.

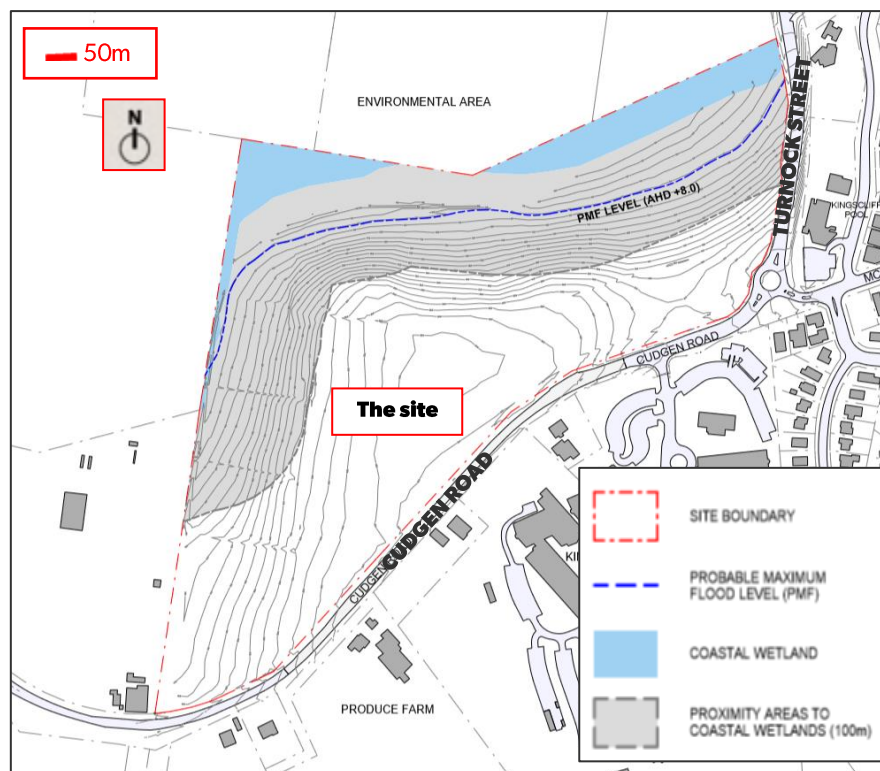


Figure 17 | Probable maximum flood level (PMF) and coastal wetlands (Source: Applicant's SRTS)

The FCHA includes maps which illustrate local area egress during a 5% and 1% Annual Exceedance Probability (AEP) event, and summarises the following findings in relation to access to the site during flood events:

- sections of the M1 and Tweed Coast Road are inundated during the 5% AEP event but there are identified alternative routes that would assist in maintaining access to the hospital for populations south of the Tweed River. The population centres to the north can access Robina Hospital within approximately 30 minutes. Details of access to the site during a 1% AEP event have also been identified.
- State Emergency Services confirmed that access to this site was maintained for the population to the south of the Tweed River during a flood in 2017 (comparable to a typical 5% AEP event).
- Queensland Transport and Main Roads (TMR) have advised that northbound access on M1 (to Robina Hospital or Gold Coast University Hospital) may be impacted during the 1% AEP event. However, alternate local roads are available to provide access to these hospitals during such an event.
- RMS advised that access from Byron Hospital, for 1% and 5% AEP can be maintained except in relation to two road sections.

The FCHA also indicates that the proposed future hospital, being located above the PMF, would not be impacted by flooding events. The supporting drainage infrastructure would ensure that the flooding risk of the downstream properties are not increased due to the development on the site. The proposed works within the Tweed Coast Road / Cudgen Road intersection are located above the 1% AEP flood level, except the northern extent of pavement extension area, being located within the upper fringe of the PMF. The FCHA considers that the encroachment is minor and would not impact on the local floor storage or pattern.

Public submissions objecting to the EIS stated that the site would be inaccessible for the residents to the north of Tweed River during a PMF, and requested a flood analysis of the route from TVH to Robina Hospital for major flood events.

In response to the public submissions, the RtS indicated that there is little merit in assessing road access to / from the site during a PMF. This would be a worst-case scenario and likely result in unsustainable damage to the region. The RtS outlined that the proposed location of the TVH is an improvement over the existing situation, where the population to the south of Tweed River cannot access the TTH during a number of flood events. OEH concurred with the Applicant's findings regarding access to the site during the various flood events and considered that this level of flood affectation is typical to this region with high rainfall.

The Department notes the community concerns about flooding and site access but considers that the access to and from the site during flood events has been comprehensively assessed during the site selection process. The SSSR and the FCHA have established that access is available to the site during the major flood events, being an improvement over the current scenario in relation to the TTH. The Department also agrees that it is unreasonable to require an assessment of access during PMF, as it is likely that additional emergency responses throughout the region would be needed to assist the community in this case. The Department has also recommended a condition of consent requiring the preparation of an Emergency Evacuation and Flood Risk Management Plan in Stage 2, to ensure that a suitable plan is in place to evacuate the patients, carers and staff in case of a major flood event in the region.

In its review of the EIS, OEH was satisfied that the flood risk assessment complied with the objectives and criteria of the NSW Floodplain Development Manual. The Department is satisfied that the building envelope, being located above the PMF, is consistent with clauses 7.3 and 7.4 of the TLEP 2014, which require buildings accommodating any critical infrastructure to be located above the flood planning level for a site. Subject to the implementation of a suitable drainage infrastructure as part of the Stage 2 application, the proposed development would not increase the risk of flooding in the locality.

6.1.3 Impacts on State Significant Farmland

The footprint of the future development is proposed to be located on land mapped as SSF and BSAL (**Figure 5**) that was previously used to produce sweet potatoes. The EIS was supported by an Agricultural Impact Assessment Report (AIAR), which noted that the site did not include active agricultural activities at the time the AIAR was prepared.

Council has objected to the application on the basis of the adverse impacts of the development on SSF causing fragmentation of arable land, loss of food production and reduction of economic viability in the region. Many community submissions have also objected to the development in relation to fragmentation and loss of SSF, loss of farming jobs, inconsistencies with the local planning directions and inadequate information regarding the cropping of sweet potato on the site. DoI considered that a comprehensive assessment of the agricultural potential of the site, the soil capability as well as specific offset measures including commitments to improve agricultural production should be undertaken by the Applicant.

The AIAR (as refined by the RtS and SRtS) includes a detailed assessment of the broader agricultural impacts, responding to the above concerns and notes that the total area of Cudgen Plateau SSF is 580.3ha, out of which 476.15ha is identified as farming land. The total loss of arable land due to the proposed change of use would be 12.01ha (2.8 per cent of the Cudgen SSF). Notwithstanding the loss of farmland, the total available SSF in the region would not fall below the designated threshold of 500ha.

While the soil type for the site comprise red to brown Kraznozems, being well suited for a broad range of horticultural crops, only 4.22ha of the cultivated area within the site is relatively flat (0.9 per cent of the total Cudgen SSF). The remainder of the cultivated areas of the site incorporate slopes from 6 per cent to 17 per cent with substantial amounts of surface rock in the soil. These areas are not considered suitable for agricultural production. The AIAR includes further details and calculations to demonstrate that based on site constraints, and the sweet potato crop rotation (not suitable for planting every year), the loss of arable land is equivalent to 4.01ha. The proposed change of use would not result in the fragmentation of SSF or reduce the economic viability of Cudgen Plateau, as the site is located at the north-eastern edge of the Cudgen Plateau SSF adjoining urban uses to the south and east. Notwithstanding, to offset the residual impacts of the loss of SSF, the AIAR recommends the following offset measures:

- increasing production in 103.12ha of underutilised agricultural land within the Cudgen Plateau
- reuse of all of topsoil in landscaped areas within the site, subject to further reviews of the suitability
- reuse of the remaining top soil (if any) off-site using appropriate methods
- opportunities for incorporating edible plant varieties within the landscape design for the future hospital
- collaborative approach by the Department of Premier and Cabinet in conjunction with the Tweed Valley Hospital Cross Agency Planning Committee to support the agricultural industry in the region and encourage partnership with Kingscliff TAFE to pursue research work regarding agricultural productivity.

Dol generally supported the additional agricultural impact assessment in the RtS and SRtS but maintained their concerns regarding the cumulative loss of SSF in the region at a strategic level. Both Council and Dol requested that clear commitments be provided by the Applicant in terms of the above agricultural offset measures to mitigate the loss of SSF in the region. Community submissions to the RtS and SRtS reiterated their concerns regarding agricultural impacts of the development.

The Department reviewed the AIAR and notes that as the site is located at the north-eastern corner of the Cudgen Plateau, fragmentation of SSF due to the proposed use would not take place. However, the Department acknowledges that there would be marginal loss of SSF within the Cudgen plateau, and supports the Applicant's commitments to mitigate the residual impacts in association with other Government Agencies. As such, the Department is satisfied that the negative impacts due to the loss of SSF in the region would be balanced by the provision of a critical public infrastructure, the need for which has been appropriately established by the Applicant and assessed as satisfactory by the Department in **Sections 3.1 and 3.2**.

The Department has recommended a condition requiring the Applicant to submit an 'Agricultural Offset Plan' with the Stage 2 application. The objective of this plan would be to identify the measures to minimise and offset the impacts due to potential loss of SSF. The Plan is required to list all the proposed offsets and identify the procedures for achieving the outcomes. This would also include local food procurement strategies where possible. The plan should be prepared in consultation with targeted stakeholders including the local farmers, affected landowners and Dol.

6.1.4 Land Use Conflicts

The site adjoins agricultural land to its west, north-west and south / south-east, across Cudgen Road. The surrounding agricultural uses include nurseries, grazing pastures as well as vegetable cropping (**Figure 7**).

Agricultural land uses

The application is supported by a Land Use Conflict Risk Assessment Report (LUCRA), which assesses and categorises the potential conflicts / risks associated with the siting of the proposed TVH near agricultural land uses, including: agricultural chemical spray drift leading to exposure of the hospital staff and patients to agricultural chemicals; odour from chemical sprays and fertilisers use; noise associated with the agricultural activities including tractors; dust from land prior to cultivation and due to tractor movements; and obstruction to TVH traffic due to the slow-moving agricultural vehicles on Cudgen Road.

The Living and Working in Rural Areas Handbook (the Handbook), a DoI publication, requires that a buffer distance of 300m be maintained between SSF and residential developments. The distance between the proposed hospital building and the agricultural uses would vary between 60m (nursery to the west) and 280m (sweet potato farm to the south-west). In assessing the risks due to the reduced distance, the LUCRA emphasises that the setback is not targeted for non-residential developments. The actual width of the buffer should be determined based on the most limiting factor that requires the widest buffer. In this case, agricultural spray drift and odour have been identified as the most limiting factors. On this basis, the report includes the following measures to mitigate the potential risks due to adjoining farming activities:

- a 30m wide vegetated buffer along Cudgen Road to screen the spray drift and dust from the south.
- a 10m wide supplementary planting zone in addition to the existing vegetation on the western boundary.
- screening the open courtyards (with patient access) from the farmlands to the south and west.
- minimising the exposure of workers and patients by air-conditioning the buildings.
- exclusion of use of roof water for potable purposes.

The LUCRA also concludes that as the noise due to agricultural activities would be restricted to daytime and be intermittent, the risk is low. The noise generated due to hospital operations would impact on the adjoining users and should be appropriately attenuated as recommended in the Noise Impact Assessment Report. The potential conflicts due to agricultural vehicles accessing Cudgen Road is considered in the traffic assessment and appropriate road improvements / driveway locations proposed to mitigate any identified conflicts. The LUCRA also recommends the preparation of a soil and water management plan to minimise adverse impact of sediment runoff during construction works on the adjoining agricultural land.

DoI generally supported the proposed measures in the LUCRA but considered that the 10m buffer width along the western boundary would be insufficient, if intensification of agricultural activities occurs on this boundary. Council stated that additional assessment should be undertaken to establish that the proposed use would not restrict the operations of surrounding agricultural land. Public submissions indicated that a buffer distance of 300m should be provided to ensure safety of hospital patients and staff and that the siting of the development would compromise the farming rights of farmers on the adjoining lands by imposing unreasonable restrictions.

In response to the submissions, the RtS argued that although the vegetated area on the hospital site is 10m wide, the setback between the hospital and the agricultural land to the west exceeds 100m. There is sufficient deep soil area along the boundary to accommodate an increased buffer width of 20m – 30m, if needed in the future. Further, there is a substantial level difference between the hospital and the agricultural land to the west, which would also restrict spray drift and odour impacts.

DoI and Council raised no further concerns in this regard, but recommended that the potentially affected land owners be actively engaged in the future to ensure that any unexpected risks are identified and mitigated. Community have maintained their concerns regarding the inadequacy of the buffer distances.

The Department's assessment in this regard notes that patients and other regular users would be housed within an air-conditioned building, located at a distance varying between 50m – 291m from the agricultural use. There

would be minimal outdoor exposure when compared to an equivalent residential setting. Consequently, the Department is satisfied that a 10m wide vegetative buffer would assist in mitigating the identified risks due to the adjoining agricultural uses, with scope to increase the width if needed.

The Stage 2 detailed design, guided by the terms of the Concept Proposal, would consider the LUCRA recommendations regarding location of the courtyards / open spaces in the context of the surrounding uses. The Stage 2 application would also allow for further consultation, input and assessment of the design response to the identified land use risks. Conditions to this effect have been recommended. The Department notes that the TVH site masterplan incorporates opportunities for future expansion of facilities within the site including provisions for further buildings on the western side of the envelope, which would be subject to future development applications. It is anticipated that any future developments on the site would be supported by additional land use risk analysis to ensure that the proposed future uses do not compromise the buffers or the ability to intensify the agricultural use on the adjoining land. The Department has assessed the potential impact of the future hospital traffic on the operation of slow-moving agricultural vehicles in **Section 6.4**.

Buffer distances from sensitive environmental areas

Community submissions have indicated that substantial ecological buffers would be required to mitigate the risks of locating the hospital building in proximity to the wetlands and bushfire hazard. The submissions suggest that these requirements would reduce the developable area of the site to approximately 11ha, which would not be suitable to fit the proposed building envelope. The Department has assessed the appropriateness of the proposed buffers to the sensitive areas of the site in **Sections 6.1** and **6.3**. The Department is satisfied that the application has considered the environmental constraints and includes adequate setbacks, without compromising the environmental sensitivities of the site.

6.1.5 Intensification of use

Community submissions raised significant concerns that the proposed development sets an undesirable precedent in the locality and introduces a risk of further urbanisation of SSF. The submissions referred to the Applicant's plans for a 'Regional Health Precinct' over rural lands to the south and west, as well as future seniors living developments on adjoining land relying on the proposed urban use of this site. Concerns are related around the recent sale of a property adjoining the site to the west, and suggestions that this is in response to rezoning of the site for future health related uses as well as refusal of previous applications to rezone adjoining properties. Council also requested that directions be provided by NSW Government regarding the Tweed Valley Hospital Precinct study.

The EIS acknowledges that the TVH site masterplan includes future expansion opportunities in concept on the development site, to justify the suitability of the site for the project, however such additional uses do not form part of this application.

The Department agrees with the Applicant's argument and considers that future expansion of the site or the identification of a Tweed hospital precinct are not within the scope of assessment of this application. Notwithstanding the above, the Department recognises that in addition to the hospital there are a number of pressures in the region having regard to additional development in designated urban areas to accommodate the predicted population growth as identified in **Section 1.6**. The Department notes that the future growth of the locality and the region has also been accounted for in the draft KLP and the NCRP.

The Department acknowledges that there may be forecast demand in the future for complimentary and supporting uses likely to be associated with the proposed health services facility, leading to intensification of use of land within the locality and the wider region. The draft KLP provides for appropriately zoned land within this surrounding area to support the future growth needs including a "Business and Knowledge precinct" to the north of the site. Housing opportunities are accommodated in other areas in the Kingscliff locality. As discussed

in **Section 3.2**, the Department acknowledges that further strategic planning reviews and strategic land use planning need to be undertaken to ensure that the development pressure including complementary health services do not further affect the sustainability of the State significant farmland in Cudgen Plateau.

6.2 Built form and urban design

Concept Proposal

The Concept Proposal involves the creation of the maximum building envelope of a nine-storey hospital building with a helipad and plant room on the rooftop, a three-storey health hub and a site masterplan. The built form and design strategy are supported by a Built Form and Urban Design Report (UD report). The relevant aspects of the Concept Proposal are the key assessment issues in determining the appropriateness of the built form and spaces in this location are discussed below.

6.2.1 Building envelope location, site masterplan and landscaping strategy

The building envelope is proposed to be located on an elevated triangular plateau within the site, defined by two ridge lines on the east and west (**Figure 18**) and clear of bushfire, flooding and coastal wetlands. The EIS includes a comparative analysis of three design / layout options to justify the preferred building footprint location based on: functionality; efficiency and flexibility; site topography; and the urban context.

The UD report indicates that the preferred location would provide opportunities to: locate at least two levels below ground to reduce the overall building height as perceived from Cudgen Road and Kingscliff residential areas; expand the health facility to the east and west; and conceal the visual bulk of the building from the urban areas to the north of the wetlands. The health hub building is proposed to be located along the Cudgen Road frontage to integrate with the public domain.

The Applicant commenced consultation with the State Design Review Panel (SDRP) and the Government Architect NSW (GANSW) prior to lodgement of the application for the Concept Proposal. During the EIS exhibition, GANSW commented that the proposed site layout is excessively shaped by vehicle circulation rather than pedestrian movement. The integration of the building with the landscaped areas was also not evident in the masterplan. GANSW considered that the Applicant should further engage with the Aboriginal community and that the site plan should incorporate details of the future expansion opportunities in the form of a 'health village' at the edge of Kingscliff. Council recommended that the masterplan appropriately address the boundary interfaces and the comments of the SDRP. In its review, DoI recommended that the landscaping should incorporate elements that offset the loss of agricultural land. Public submissions commented that the site topography may restrict movement of the users with disability, external lighting would compromise the rural ambience in the locality and that the site plan should include specific details of future expansion.

In response to the above concerns, the RtS and SRtS included an addendum to the UD report and minor amendments to the location of the building footprint. The building footprint (as refined by the RtS) for the hospital includes substantial setbacks from all site boundaries (**Figure 10**).

The proposed site masterplan is planned around a linear spine, parallel to Cudgen Road, with the hospital building forming the nucleus and connected to forecourt spaces on either side, by pedestrian and vehicular networks, as identified in **Figure 18**. The main public entry to the premises connects to this spine from a signalised entry off Cudgen Road. The health hub building is proposed in proximity to the main entry and collocated with the public spaces. At grade public and staff car park areas are proposed on either side of the main building with separate dedicated access points and yards for the ambulance and other services.

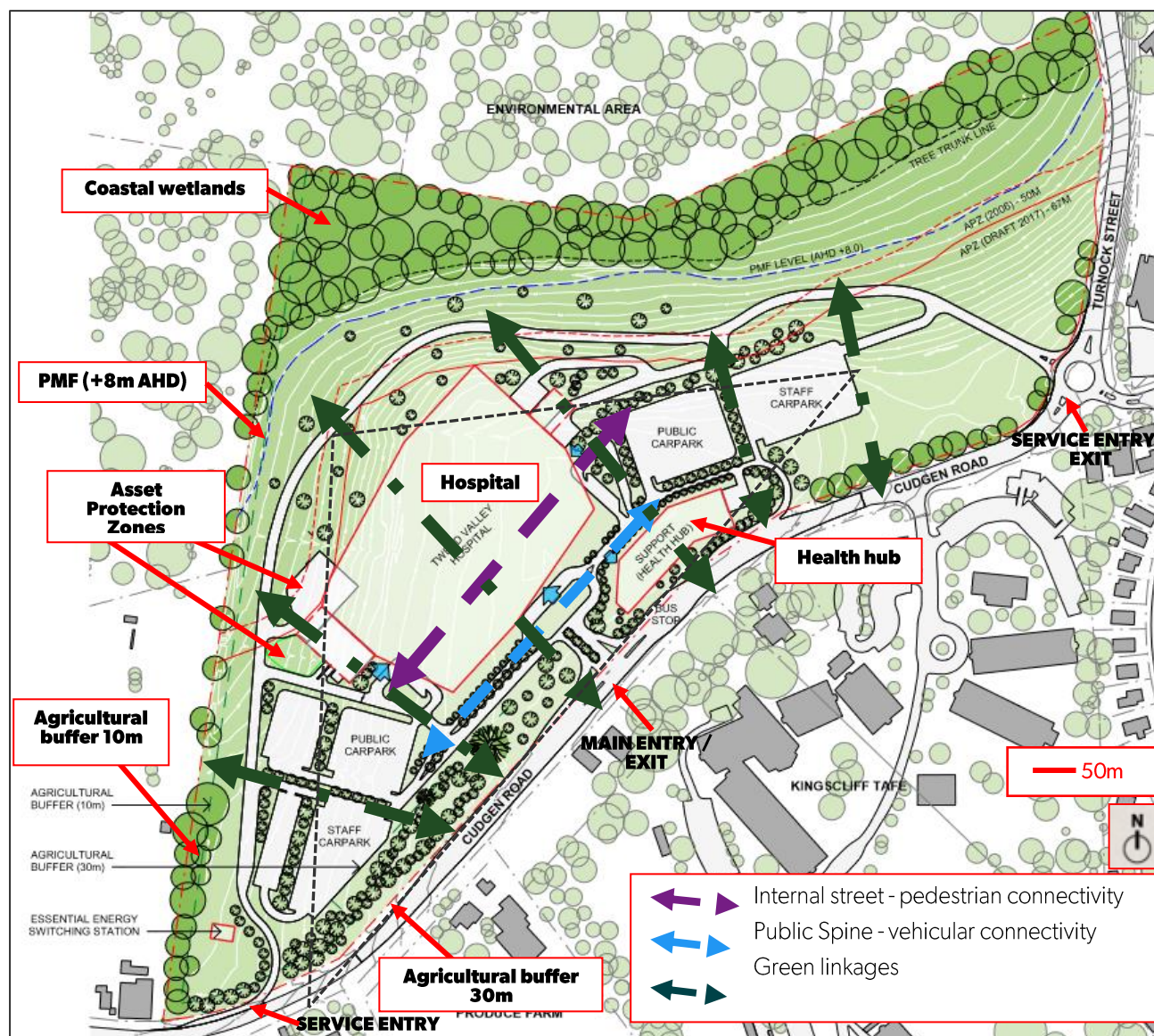


Figure 18 | Concept masterplan, vegetation buffer zones, ordered forecourts, spines and linkages overlaid on the site constraints (Source: Applicant's SRTs)

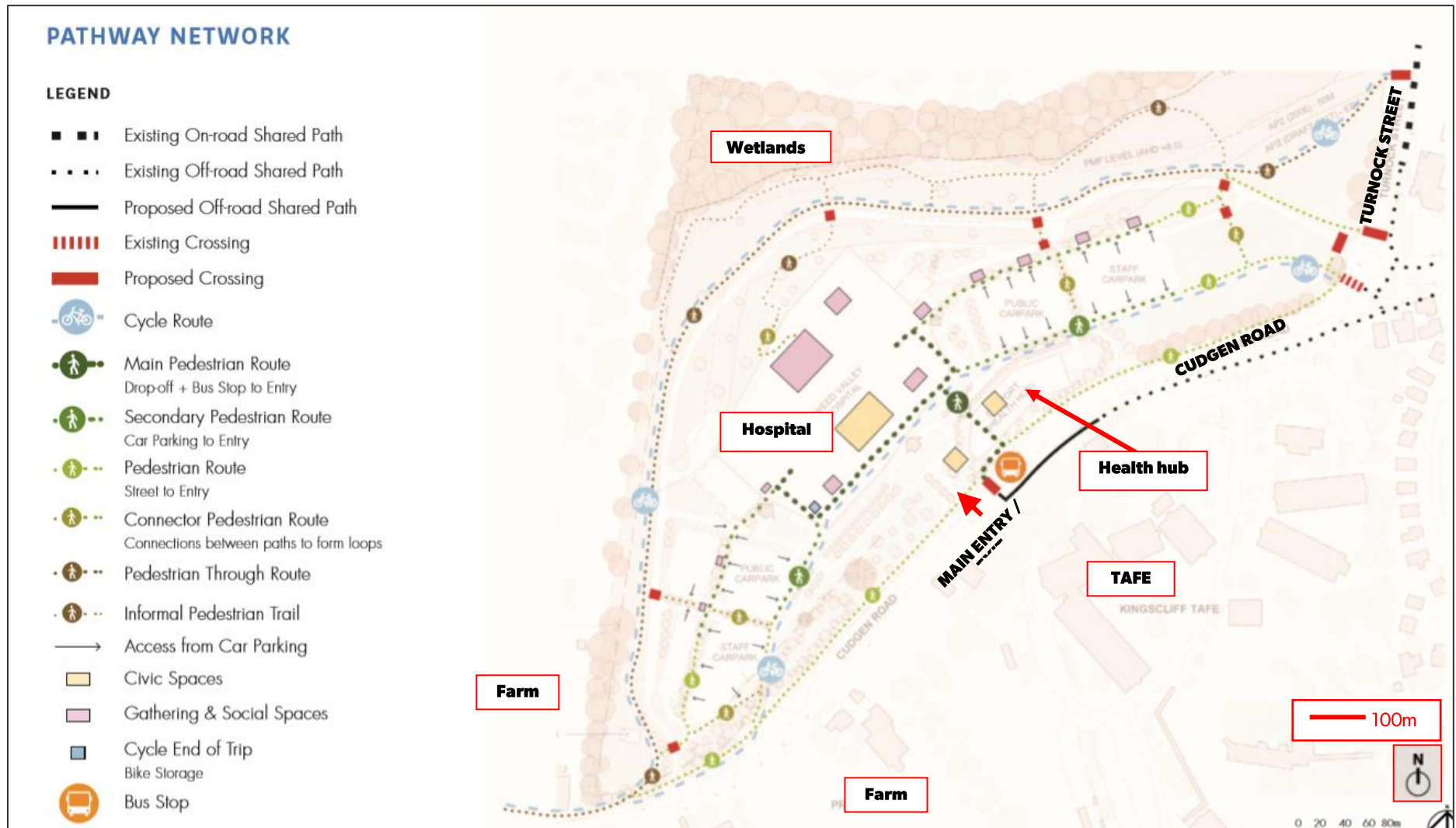
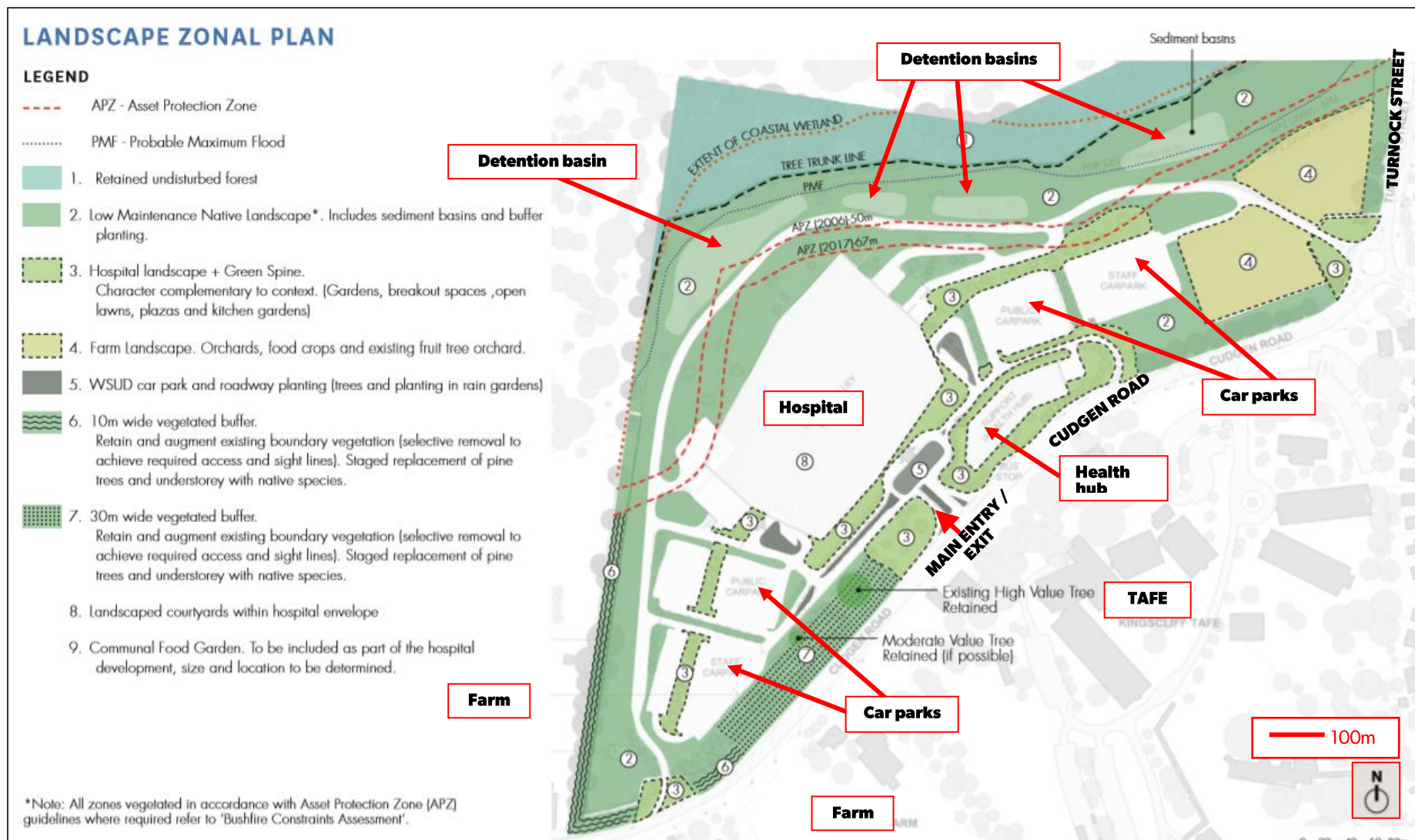


Figure 19 | Public spaces and pedestrian connection strategies (Source: Applicant's SRtS)



The masterplan also includes a plan of the pedestrian network connecting the various parts of the site, pick-up and drop-off areas with pedestrianised forecourt link to the bus stop on Cudgen Road, and identified civic gathering spaces as below (**Figure 19**):

- An entry forecourt leading to the hospital.
- interface areas leading to the car parks.
- a terrace and garden to the north.

A site wide landscaping strategy is proposed, which includes open spaces, courtyards, mature planting areas, and vegetative buffers around the future built form and the site boundaries. The existing detention basins and associated drainage infrastructure would also be integrated with the landscaping. The RtS states that the landscaped areas would improve the visual amenity and allow patients and visitors to access to the outdoor spaces, supporting the principle for a healing environment. The UD report identifies measures to reflect the Crime Prevention Through Environmental Design (CPTED) principles, which have been adopted in the concept site masterplan, including territorial reinforcement and passive surveillance opportunities through site planning.

Figure 20 identifies the site wide concept landscape plan (as refined by the RtS) with six zones of planting. The proposed farm landscape zone would include opportunities for edible produce and reuse of the existing topsoil. The Applicant advises that integrated landscaping treatments for the ground level public areas, details of the internal hospital courtyards, public domain treatments, disability access compliance and the CPTED measures would be considered in the Stage 2 development application. An exterior lighting strategy would also be developed to minimise the obtrusive impacts due to light spill. The RtS committed to continuing engagement with GANSW and local Aboriginal community in the Stage 2 application and incorporate the recommendations in the detailed design process.

Following the submission of the RtS and SRtS, the Applicant has actively consulted with GANSW and the SDRP to address their previous concerns, further develop the site plan and integrate the building footprint with the site topography. Concept designs with future expansion possibilities have been presented to the GANSW to justify the current location of the footprint. As a result of this consultation, the GANSW support the location of the proposed building footprint, subject to further detailed design development in Stage 2.

The Department has reviewed the site masterplan, the location of the building footprint and the community and public authority comments. Based on GANSW's conclusions, the Department is satisfied that the site plan aims to locate the building envelope in an area that would minimise the visual impact on the immediate public domain, distant urban areas to the north and west as well as respond to the natural constraints of the site.

The site plan is suitable to accommodate the vehicular areas, the built forms, public gathering spaces and well-connected pedestrian networks. The landscape zones and buffers would be effective elements to soften the built form and create the village environment for the site, which can be further improved in Stage 2. The masterplan also incorporates the scope to accommodate an integrated street system with a unifying boulevard, as suggested by GANSW. The Department has recommended a condition of consent to ensure that the any internal courtyards, accessed by patients, are appropriately screened as recommended by the LUCRA.

The Department is also satisfied that the EIS broadly outlines a long-term precinct plan and landscaping strategies for the site and addresses the interfaces proposing low scale-built forms along the boundaries as requested by Council.

6.2.2 Building envelope design

The Concept Proposal seeks approval for the maximum building envelope (uppermost level at RL 67.1) of the future hospital, an envelope for a health hub and an approximate maximum GFA of 65,000sqm for the site. With

regard to the adopted built form design strategy, the UD report includes a comparative analysis of three possible building design typologies, based on functionality, efficiency and flexibility, site topography and urban context:

- spine and pavilion or horizontal built form.
- vertical monolith.
- podium – tower.

Following the comparative analysis, the EIS confirms the stacked or a ‘podium – tower’ typology to be the preferred option for the site.

The Concept Proposal (as refined by the RtS and SRtS) contemplates that the stacked arrangement would comprise a two - level podium over the ground entry level, a lower plinth level plus two levels of basement below the ground floor, and a tower on top. The building functions would be distributed in three zones. The distribution of the functions and the density of the functional areas compared to the total building mass are identified in **Figure 21**. The Applicant’s intention is that the final design outcome promotes a coherent salutogenic environment, being a medical approach focussing on factors that support human health / well – being, and also enhance the local region.

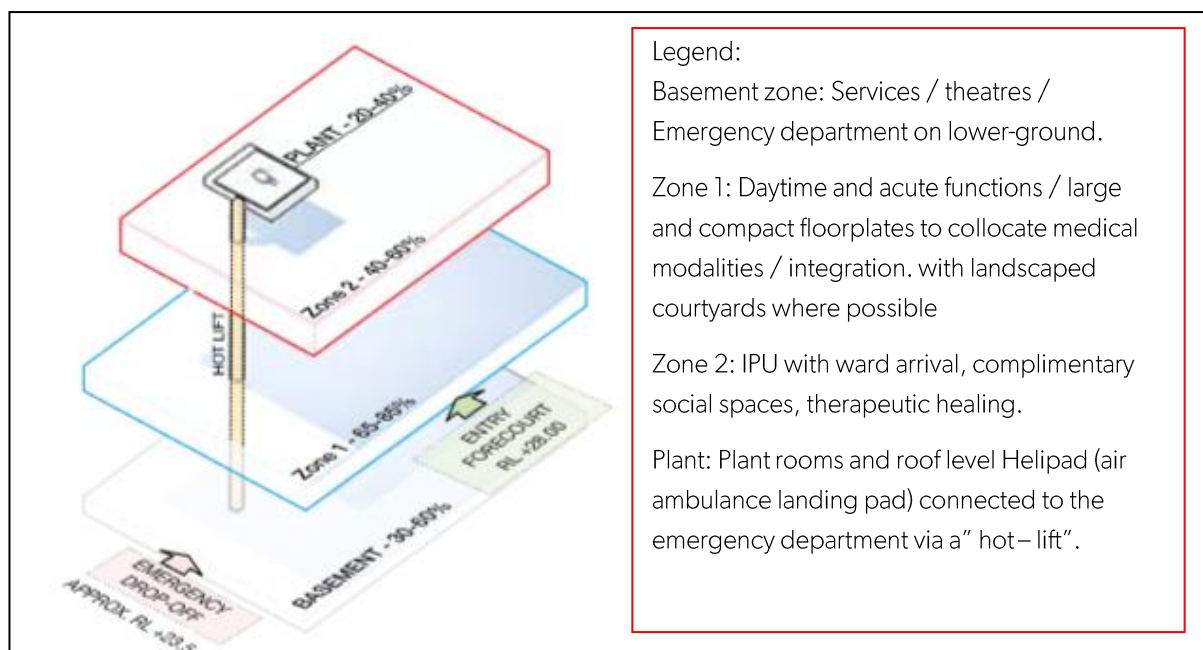


Figure 21 | Proposed volumetric stacking arrangement and building density (Source: EIS)

Community submissions to the EIS raised concerns regarding: the ability of the building envelope to accommodate a 900-bed hospital; the bulky floor plates; lack of details of the support building and the internal car parks or the future buildings; and lack of details of possible multi-decked car parks on the site.

GANSW reviewed the EIS and considered that the built form should further integrate with the public spaces / landscaped areas, relate to the natural topography of the site and present a reduced overall bulk. GANSW requested details of the other design typologies (comparing GFAs) to justify the preferred design typology. Public submissions considered that the proposed podium - tower built form resulting in an isolated nine-storey building on the site, would not be compatible with the character of the area.

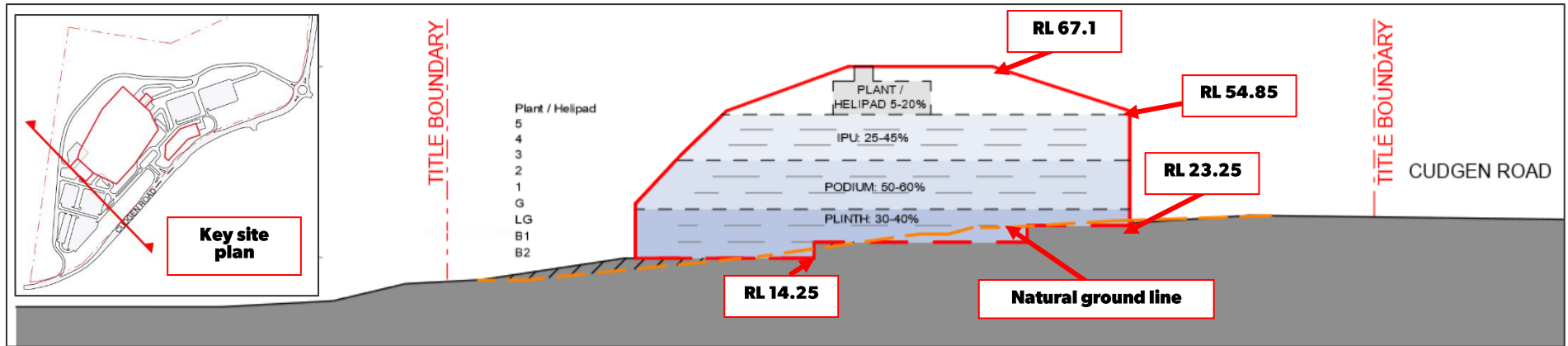


Figure 22 | Cross section through the site viewing the south - west elevation (fronting Cudgen Road) (Source: Applicant's RtS)

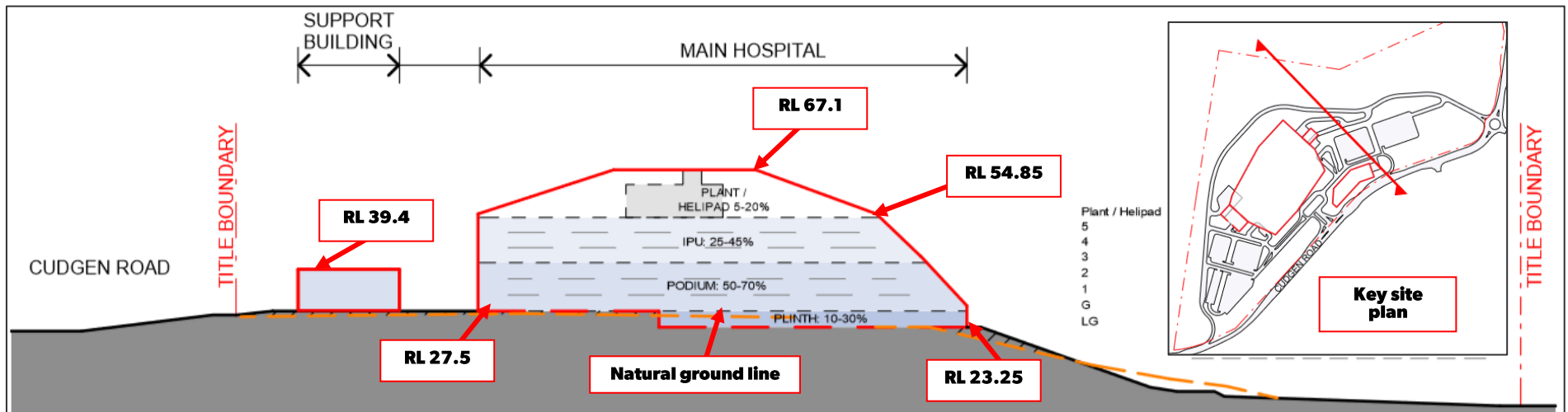


Figure 23 | Cross section through the site viewing the north-east elevation (fronting Cudgen Road) (Source: Applicant's SRTs)

In response to the issues raised in the submissions, the RtS amended the building envelope design by: defining the uppermost level of the habitable areas at RL 54.85 and the maximum envelope with plant rooms at RL 67.1; reducing the density of the upper floors; setting back the plant room from the building edges; and introducing an additional basement level facing the northern boundary in lieu of the previously filled area.

The amended envelope would appear to be nine – storeys (maximum) excluding the plant room / helipad from the northern boundary (**Figures 22 and 23**). When viewed from the Cudgen Road frontage, the building envelope would include approximately five / six levels above ground with the three-storey health hub in front. The RtS argued that the stacked design typology would better respond to the functional requirements of the hospital than a horizontal typology or a monolith. The stacking would allow capacity for growth, optimal site use, reduced internal walking distances and solar access to the IPUs, subject to detailed design in Stage 2.

Following the submission of the RtS, the Applicant has further consulted with GANSW regarding the future design of the hospital, the health hub and the overall built form articulation that would improve the correlation of the building with the site contours and the perceived public spaces and landscape areas on the site. The GANSW commented that the Applicant has addressed their concerns and can be further developed in Stage 2 in consultation with the SDRP. Therefore, the design of the proposed envelope is supported.

The Department has reviewed the Applicant's built form strategy and the submissions in relation to the proposed built form. The Department's assessment notes that the proposed building typology and the maximum floor plate dimension are driven by clinical and functional requirements such as minimum walking distances, location and accessibility to facilities and disabled access. The amended building envelope has reduced the building bulk by reducing the building mass of the upper levels, maximising the lower level floor plates, introducing additional functional areas in the basement and setting the plant rooms back from the building edges.

The Department notes GANSW's initial concerns about the 'podium and tower' built form, and acknowledges that the 'spine and pavilion' or horizontal built form would have less visibility from a distance, due to the reduced height and distribution of the built form on the site. However, the Department also agrees that the proposed 'podium and tower' built form would result in one tower when compared to multiple horizontal buildings that may interfere with the rural landscape or reduce the visibility of the vegetation to the north, when viewed from the Cudgen Road frontage. As such the Department is satisfied that the UD report embodies the design principles that are an appropriate tool to guide the future development of the site and detailed design of the hospital.

While the Department notes the community concerns regarding the bulk and scale, it considers that the building envelope presents the maximum floor plate dimensions, which would likely be reduced by built form articulation and design. The EIS specifies that all the services and facilities would be accommodated within the approximate GFA of 65,000sqm for the two buildings on the site. Recommended conditions require the Stage 2 application to comply with the GFA requirement. The scope of this development application does not include the future bed capacity or multi-decked car parks (which could be considered as a potential future expansion plan under separate development applications). Recommended conditions of consent also require the Stage 2 application to include a wind and reflectivity impact analysis, to demonstrate that the final development form does not result in adverse wind tunnel effects in the locality or impact on the surrounding residents due to glare / reflectivity from the proposed building materials.

6.2.3 Visual Impact

The Tweed Shire Scenic Landscape Evaluation 1995 states that the Cudgen district has high scenic values of the rural landscape contrasted by forested hills. The site's visual catchment comprises a mix of rural lands, forested hills, low density residences and educational establishments. The elevated residential area, to the east of the site, identified as Kingscliff Hill precinct in the draft KLP, includes regional panoramic views towards Fingal Head and

Cook Island (north) and Terranora Ridgeline (north-west). The draft KLP also identifies key views to Mt Warning, the Border Ranges and Terranora ridgeline that are relevant to the development. The draft Tweed Landscape Strategy (currently on exhibition) identifies “viewshed maps” (view shed being the entire area that is visible from a viewing situation) to assess the visibility of a site regionally. Pursuant to this document, the site is visible from 10 or more identified viewing areas regionally.

The proposed building envelope for the hospital would result in a variable height of 27.1m – 31.6m (Cudgen Road) and 31.6m – 40.6m (northern boundary) above the natural ground level. The height of the plant room and helipad would be an additional 12.25m. The Applicant’s EIS included a Visual Impact Assessment (VIA) identifying visually sensitive receivers (VSRs) with a direct and unobstructed view of the site (the ‘view frame’). The VSR locations 1, 1a and 2 generally correspond to the key view locations in the draft KLP (**Figure 24**).

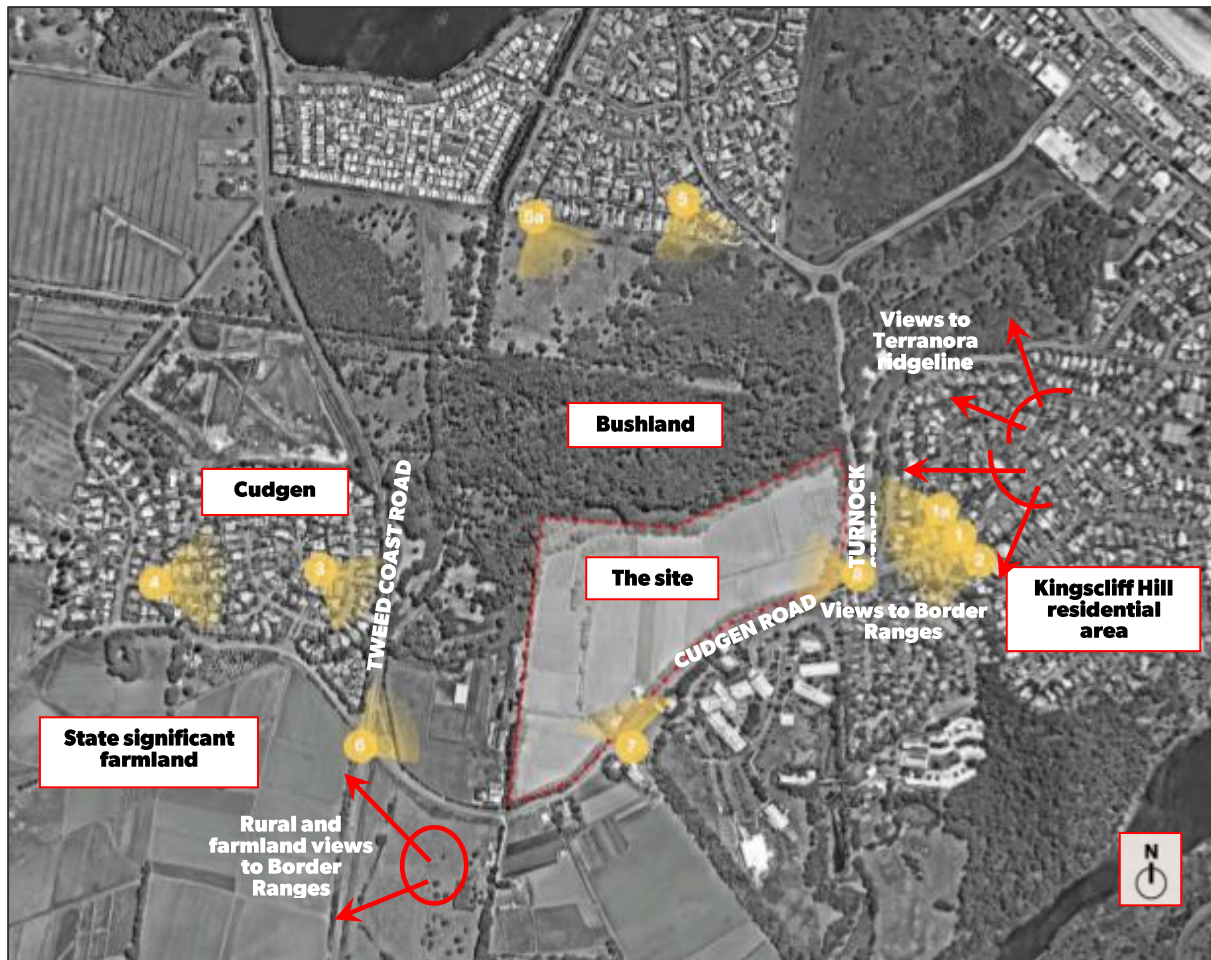


Figure 24 | Visually Sensitive Receiver Photo Locations (Source: Applicant’s SRtS)

The VIA methodology to assess the impact of the view loss to the VSRs due to the development is broadly based on the four-step planning principles established by the Land and Environment Court in the *Tenacity Consulting v Warringah [2004] NSWLEC 140* (Principles of view sharing: the impact on neighbours).

The VIA categorised the visual qualities of the view frames of the VSRs. Four categories were then used to define the impacts on the visual qualities including: negligible (no impact), low (minor loss of views of natural landscape), medium (moderate loss of iconic or natural views) and high (loss of iconic views). Based on the above, a visual assessment summary of the VIA concluded that the proposed maximum building envelope would result in an obvious change to the site and local landscape with a resultant reduction in the overall quality of view frames for all assessed VSRs except VSR 5 in **Figure 24**.

However, the most affected Kingscliff Hill residential area, to the east, would still retain appreciable distant views of natural landscape features, including bushland, hinterland and ranges, although some residences (VSR 1 and 1a) may lose distant views of Mt Warning. The overall view impact was assessed as **medium**.

During the EIS exhibition, community submissions, Council and GANSW raised concerns about the adverse visual impacts of the tower-built form and its compatibility with the existing visual character of the rural and the regional area, when compared to a horizontal built form. The Department raised concerns regarding the visual impact of the proposed retaining walls required to support the open and benched areas of the site.

In response, the RtS has provided an amended design of the hospital building envelope reducing the overall building mass (discussed in **Section 6.2.2**). The SRtS includes photomontages overlaying the maximum building envelope and the health hub building envelope on the view frames of the VSRs (**Figure 25** and **26**).



Figure 25 | Photomontages assessing view impacts on identified VSRs in the locality (Source: Applicant's SRtS)



Figure 26 | Photomontage assessing view impacts on identified VSRs in the locality (Source: Applicant's SRtS)

The SRtS notes that the health hub would be primarily visible from the Cudgen Road frontage and would have no significant impact on the VSRs located elsewhere in the locality. The RtS does not consider any changes to the overall view impacts as a result of the amended building envelope.

A schematic reference design has also been provided to demonstrate that, subject to detailed design in Stage 2, the building bulk and the associated visual impact could be further reduced through building articulation, reduced building density of upper levels, setbacks of the upper levels from the building edges (**Figure 27**).

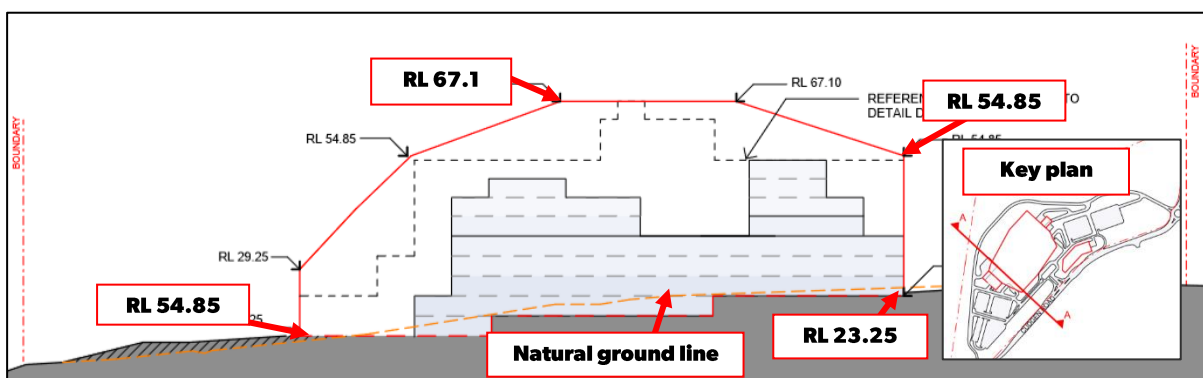


Figure 27 | Schematic design to demonstrate reduction in scale when compared to the envelope (Source: Applicant's EIS)

In response to the concerns regarding the retaining walls, the RtS included several alternate measures to reduce the visual impacts of the retaining walls. A concept plan and typical sections with tentative heights of retaining walls were also provided (**Figure 28**).

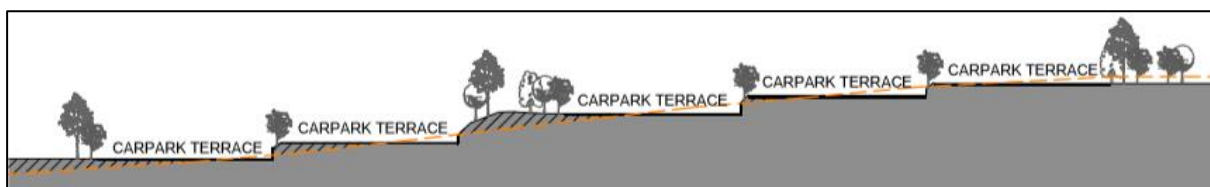


Figure 28 | Typical section through the site to demonstrate retaining wall treatments (Source: Applicant's EIS)

The Department has assessed the submissions on the potential visual impacts of the Concept Proposal. In assessing the visual impacts on the identified VSRs, the Department has considered the planning principles established by the Land and Environment Court in *Tenacity Consulting v Warringah [2004] NSWLEC 140*, as a guide, noting that the planning principles are applicable to private views only.

The Tenacity case provides three key steps to assessing impacts (which are referenced in the VIA). In relation to steps 1-3, the Applicant has submitted a series of photomontages, supported by assessment on the visual quality and sensitivity of the identified VSRs. The Department acknowledges the Applicant's conclusion that the view impacts would be medium for majority of the sensitive locations and would likely improve in Stage 2, subject to adherence to the design strategies and further refinement of the design. However, the Department concludes that the proposed development would be highly visible both locally and regionally. This would be due to its elevated location and appearance as a five to nine storey building with a roof top helipad when compared to the predominantly one to two storey established built form and the rural settings. Consequently, the visual impact of the structure on the locality and well as the broader region would be significant.

The fourth step is to "assess the reasonableness of the proposal that is causing the impact". In assessing the whether the visual impact of the proposal is reasonable, the Department notes that the design of the future hospital is guided by the functional parameters, the building mass being a critical component to accommodate the functional areas to cater for the projected needs of health services in the region. Consequently, a substantial reduction in the building mass would compromise the public benefits of this critical infrastructure, which is not warranted in this instance.

The Department considers that the building envelope is the worst – case scenario. The Applicant has taken reasonable steps to reduce the overall scale of the envelope by introducing sufficient setbacks to the street boundaries and planting of mature trees and is currently undertaking consultation with GANSW to further reduce the visual bulk of the structure, as noted in **Section 6.2.2**. In accordance with the schematic building envelope design in **Figure 27**, there are opportunities to reduce the building bulk in Stage 2, subject to detailed design of the functional areas and incorporation of setbacks at various levels of the building. Considering the above, the Department is satisfied that subject to an appropriate design of the future hospital, the health hub and the retaining walls guided by the recommendations in the UD report and in consultation with GANSW, the potential visual impacts can be minimised. The Department is also satisfied that despite the bulk of the building envelope, the landmarks / distant views of forests, Mt Warning or water views would be maintained.

The Department has recommended conditions of consent requiring that the Stage 2 development application be supported by a detailed Visual and View Impact Assessment to ensure that the design of the future hospital and the associated facilities do not have unreasonable impact on the existing view frames of the identified VSRs.

6.2.4 Overshadowing and visual privacy

The building envelope of the hospital includes substantial setbacks to all boundaries to minimise unreasonable impacts on the visual privacy of the surrounding residential properties. The shadow studies supporting the SRTS, demonstrate that shadows cast by the proposed envelope would be largely contained within the site boundary and would not impact on residential properties in the locality due to overshadowing.

The Department has assessed the shadow diagrams and is satisfied that the proposed envelopes would have negligible impacts on the surrounding agricultural lands or the residential properties. The Department notes that the proposed public spaces (within the site) to the south of the envelope may be overshadowed in excess of three hours, between 9am and 3pm during winter solstice. However, the Department considers that this scenario is likely to improve subject to further built form articulation and setbacks. A condition of consent requires that the Stage 2 application be supported by solar access diagrams to demonstrate that the proposed hospital or the support building would provide at least three hours of solar access between 9am - 3pm during winter solstice to the adjoining agricultural fields, nearby residences or the public domain areas within the site.

Stage 1 works (Built form and urban design)

The Stage 1 works would involve bulk earthworks (cut and fill) throughout the site to establish site levels, future building platforms, piling works for the future hospital building, retaining walls to support the established site levels and sealed haul roads.

6.2.5 Bulk earthworks for the future hospital

Community submissions have raised concerns that the proposed bulk earthworks including piling cannot be undertaken on the site as part of Stage 1 without a detailed design of the future building.

As noted in **Section 6.2.1** and **Section 6.2.2**, the Applicant has consulted with GANSW regarding the overall building design strategy and future building envelope location. GANSW have endorsed the building footprint and the envelope, subject to detailed design part of the Stage 2 application. Based on the ongoing consultation and the agreement on the building envelope location, the Department recommends approval of the piling works as it would not have a significant impact on the final design of the built form above ground in Stage 2.

6.2.6 Visual Impact (Stage 1 works)

The bulk earthworks would result in approximately 45,000m³ of excess spoil (cut material), which would be retained on the site as temporary stockpiles. The Applicant has not confirmed the height of the stockpiles but identified the location of the stockpiles to be near the Cudgen Road frontage, screened by existing vegetation (**Figure 14**). The RtS notes that the maximum height of retaining walls would be restricted to 3.4m and sloping battered embankments proposed along site boundaries to avoid the detrimental visual impact of high retaining walls on the adjoining land (**Figure 15**).

The Department's assessment of the visual impacts of the Stage 1 works concludes that restricting the height of the proposed retaining walls and battered embankments and the site boundaries would reduce the negative visual impacts in Stage 1. The stockpile mounds would not be prominently visible, given their location and the existing vegetation screening along the frontage of Cudgen Road. The stockpiles would be visible from a distance on the eastern and western sides. However, the visual impact would be temporary and typical to a large construction site. Notwithstanding, a condition of consent is recommended requiring the height of the stockpiles on the site to be restricted to 3m to avoid significant visual impact on the Cudgen Road.

6.3 Biodiversity Impacts and coastal wetlands

6.3.1 Works within the 'proximity area for coastal wetlands'

The northern part of the site includes mapped coastal wetlands and a 100m wide proximity area pursuant to the Coastal Management SEPP.



Figure 29 | Mapped coastal wetlands (Source: Applicant's SRtS)

The aims of the Coastal Management SEPP are to manage development in the coastal zone and protect environmental assets of the coast. Clause 11 of the Coastal Management SEPP requires that in granting development consent to development on land identified as 'proximity area for coastal wetlands' (proximity area), the consent authority must be satisfied that the development would not significantly impact on: the biophysical, hydrological or ecological integrity of the adjacent coastal wetland; or the quantity and quality of surface and ground water flows to and from the adjacent coastal wetland.

The proximity area is also designated as SSF comprising primarily cleared land. The north-western corner of the building footprint for the future hospital, the APZ prescribed in the Bushfire Assessment Report (BSR), the recently constructed sediment basins, the proposed drainage infrastructure and the internal roads are all proposed to be located within the proximity area as identified in **Figure 29**. The community have raised significant concerns regarding the proposed works within the proximity area. Council recommended that a minimum 50m wide buffer be proposed from the wetlands.

The Department notes that the Coastal Management SEPP does not prohibit the location of any development within the prescribed proximity area, subject to a careful assessment of the cumulative impacts and having regard to the environmental assets of the site as well as the provisions of clause 11. The Applicant has undertaken such an assessment as set out below, where the whole of the site and the proposed development is considered. An assessment of the impacts of all proposed works within the proximity area are discussed concurrently with the impacts on the local biodiversity in the following sections of this report.

6.3.2 The Biodiversity Development Assessment Report (BDAR)

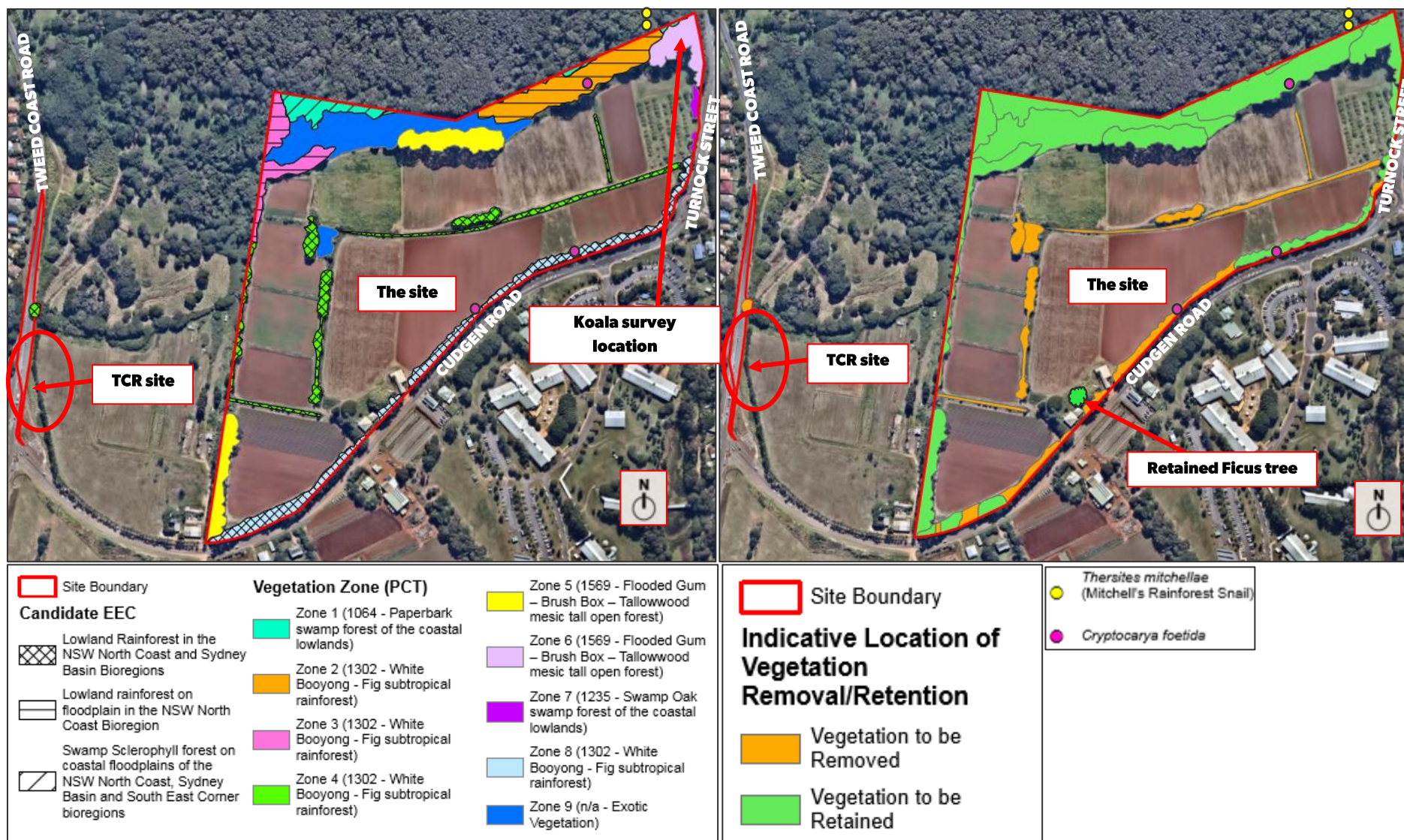
The developable area of the site comprises primarily cleared land. However, the proposal would result in the removal of two trees and over 150 windbreak trees (0.95ha of vegetation). The EIS included a BDAR, assessing the impacts of the construction and operation of the future development on the local biodiversity.

In its submission to the EIS, OEH requested that the BAM assessment and the BDAR be revised to address matters in relation to the development footprint, impacts on coastal wetlands, and the impacts of the APZ on the biodiversity. Council and the community raised significant concerns regarding various aspects of the proposal and the resultant adverse impacts on the identified biodiversity on the site and the surroundings.

In response, the Applicant submitted a revised BDAR for the site and the Tweed Coast Road / Cudgen Road intersection upgrade site (TCR site). The revised BDAR discusses the impacts of the development within the proximity area. The BDAR considers the following having regard to the Concept Proposal and Stage 1 works:

- any serious and irreversible impacts due to the siting of the development.
- direct impacts on biodiversity due to the removal of vegetation and fauna habitat from the site.
- indirect impacts due to various factors including location of the APZ within the proximity area.
- additional prescribed impacts (clause 6.1 - Biodiversity Conservation Regulation 2017) including impacts on water quality, quantity, hydrological processes sustaining threatened species / ecological communities.

To assess the impacts, the BDAR includes habitat surveys of identified threatened species and has classified the existing vegetation on the site into zones 1 – 9 with candidates for EEC in each zone (**Figure 30**). The maps indicate identify four plant community types (PCT) in eight vegetation zones on the site. Two of these vegetation types (PCT 1064 Paperbark swamp forest of the coastal lowlands of the NSW North Coast Bioregion and Sydney Basin Bioregion and PCT 1302 White Booyong – Fig subtropical rainforest of the NSW North Coast Bioregion) are composed of vegetation zones that can be classified as EEC. Vegetation integrity (VI) scores of the two effected PCTs are provided based on their structure and composition. The conclusions of the BDAR, the biodiversity impacts under the provisions of the BC Act and the offset measures, compliance with the provisions of SEPP 44, and the Coastal Management SEPP are discussed concurrently in the sections below.



6.3.3 Direct Impacts

Stage 1 works

The bulk earthworks in Stage 1 would require clearing of the site. The direct biodiversity impacts of the proposed works are identified in **Figure 30** (right) and summarised below:

- a total of 0.95 ha of vegetation on the site in Zones 4 (0.55ha) and 8 (0.4ha) would be removed.
- the impacted vegetation in Zones 4 and 8 include one PCT (1302 - White Booyong – Fig subtropical rainforest) identified as an EEC candidate.
- the VI scores for Zone 8 (16.8) exceed the threshold requirements and three ecosystem credits are generated by the BAM calculator that are required to be offset.
- the VI scores for Zone 4 (10.6) fall below the relevant threshold and would not require offsetting.
- a total of 14 species credits are generated by the BAM calculator, based on the assumed presence of the three-toed snake-tooth skink *Coeranoscincus reticulatus* and powerful owl *Ninox strenua* in Zones 4 and 8; and removal of one stinking cryptocarya *Cryptocarya foetida* in Zone 8. Such credits will need to be offset.

The BDAR notes that the removal of the exotic vegetation in zone 9, including the custard apple trees, the orchard and the farmlands would not require offsetting.

OEH supported the credit offset calculations, and requested that the requirements be satisfied prior to the commencement of Stage 1 works. OEH also supported the proposal to regrow the Zone 9 grass with rainforest species in the future.

Based on the Applicant's and OEH's submission, the Department is satisfied that the Stage 1 works would minimise direct impacts on vegetation and fauna, and the residual impacts due to the removal of vegetation and species can be appropriately offset by retiring the generated credits prior to commencement of any works in Stage 1 that would impact on the biodiversity values of the site. The Department has recommended conditions requiring the retirement of credits and the preparation of a BMP for Stage 1 including a study to consider the feasibility of translocating the removed *Cryptocarya foetida*, as requested by OEH. Subject to the above conditions, the direct impacts of the proposed development in the proximity area would also not significantly impact on the biophysical, hydrological or ecological integrity of the coastal wetlands, or the quantity and quality of the surface and ground water flows to and from the coastal wetland consistent with clause 11 of the Coastal Management SEPP.

The BDAR has conducted targeted scat survey of koala *Phascolarctos cinereus* and identifies that a 0.2ha area of vegetation within Zone 6 (**Figure 30**) meets the definition of 'Potential Koala Habitat' as defined in SEPP 44. The Stage 1 works would not remove any vegetation within Zone 6 and therefore is unlikely to have any direct impacts on this species. OEH have not raised any concerns with regard to direct impacts on potential koala habitat within the site. The Department is satisfied that the proposal would be consistent with the aims of SEPP 44 as it proposes to retain the vegetation within Zone 6.

Concept Proposal

The Concept Proposal includes no building works and thus no direct impacts would occur. The BDAR includes a survey of the TCR site (the Tweed Coast Road and Cudgen Road intersection) and concludes that the proposed removal of vegetation would not result in any significant direct impact on the biodiversity and therefore would not require offsetting.

The BDAR recommends that a Vegetation Management Plan (VMP) be prepared in the Stage 2 application, to facilitate the replacement of the exotic grassland in Zone 9 with rainforest species in landscaped areas of the developed site. Conditions to this effect have been recommended.

6.3.4 Impacts on Commonwealth listed threatened species

A large number of community submissions and correspondences have raised concerns regarding the perceived inadequate assessment of the Commonwealth listed threatened species in the EIS. In response, a separate MNES report was provided with the RtS to address the EPBC Act and the Commonwealth referrals requirements.

The Applicant is not proposing to refer this matter to the Commonwealth. OEH provided no specific comments regarding the MES report submitted by the Applicant. The Department notes that the requirements of the EPBC Act are outside the scope of the SSD application and no further assessment in this regard is necessary.

Notwithstanding, to address the community submissions, the details of impacts due to the proposal that have the potential to be classified as MNES are discussed below.

Stage 1 works

Three *Cryptocarya foetida* plants (vulnerable species) are identified on the site in zones 4 and 8. The Stage 1 works would result in the removal of one plant in zone 8 (**Figure 30**). An assessment against the MNES Guidelines by the Applicant concludes that the removal of one plant in zones 4 and 8 would not have a significant impact on this population and a referral to the Commonwealth under the EPBC Act is not required. The report also concludes that the removal of the PCT in Zones 4 and 8 would have no significant impact on the population of grey-headed flying-fox *Pteropus poliocephalus* (vulnerable under the EPBC Act), pink underwing moth *Phyllodes imperialis smithersi* and southern black-throated finch (endangered species).

The MNES and BDAR confirm that the vegetation zone 4 and 8 are not suitable for the habitat of the critically endangered species Mitchell's rainforest snail *Thersites mitchellae*. The snail is detected in Zone 1 vegetation (**Figure 30**) within the wetlands, outside the site boundary.

Two TECs, being the Lowland Rainforest of Subtropical Australia (PCT in zones 2, 3, 4 and 8) and Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland (Zone 7) have been identified on the site. The MNES report concludes that the removal of identified TECs in zones 4 and 8 would not be MNES, based on the nature and size of the vegetation. Therefore, a referral to the Commonwealth is not needed.

As noted in **Section 6.3.3**, targeted koala (*Phascolarctos cinereus*) (vulnerable species) scat survey has been undertaken in a small 0.2ha area of preferred koala habitat in Zone 6. The assessment concludes that the nature and condition of the vegetation in this zone are not favourable to be utilised by koalas (*Phascolarctos cinereus*) and therefore this vegetation is not a core koala habitat. No koalas were detected on the site during the surveys.

Concept Proposal

While the Concept Proposal involves no building works, the Department notes that the future development footprint in Stage 2 would retain 1.9ha of the remnant Subtropical Rainforest in Zone 2 and 3 and would likely have no impact on the potential koala habitat in Zone 6 or the Mitchell's rainforest snail. The Department considers that the proposed regrowth of the rainforest species within the site would assist in restoring the habitat of this species. Recommended conditions require this requirement to be incorporated in a long-term BMP for the Stage 2 application.

6.3.5 Indirect Impacts

The BDAR states that approximately 3.65ha of native vegetation may be indirectly impacted by the Concept Proposal and the Stage 1 works including 2.74ha of EEC in Zones 1, 2, 3, 4 and 8. The indirect impacts would relate to noise, vibration, light spill, dust, visual amenity (rubbish and waste retained on the site attracting fauna) and the bushfire management regime. The BDAR provides relevant mitigation measures following assessment of the identified impacts and concludes that the residual impacts would be very low with no requirements for offsetting. The mitigation measures are discussed below.

Stage 1 works

The recommended mitigation measures for the Stage 1 works include:

- inclusion of wildlife protection measures within the Construction Environmental Management Plan (CEMP).
- preparation of a BMP including provisions for tree protection, fencing, and avoiding weeds
- location of the stockpiles outside the fenced areas.

Concept Proposal

The recommended mitigation measures for the Stage 2 application include:

- an Operational Noise Management Plan and Operational Environmental Management Plan for the site.
- a long-term BMP including a Habitat Management Plan (HMP) and VMP to include adaptive management of impacts on biodiversity, and measures to monitor predicted impact.

OEH have reviewed the indirect impacts and raised no concerns subject to the implementation of the mitigation measures. Council commented that given the extent of impacts, the Stage 1 BMP should include a HMP and a VMP. The HMP should include provisions to manage the potential koala habitat in Zone 6.

The Department has assessed the impacts of noise, light spill, vibration and traffic for Stage 1 works and the operation of the future development in **Section 6**. Having regard to the indirect impacts of the Stage 1 works on the biodiversity, the Department has requested a condition requiring the Stage 1 BMP to include the HMP and VMP as sub-plans. This would ensure that the fauna habitats (including koalas) and the retained vegetation are appropriately managed during the construction works on the site. The implementation of the HMP would ensure that the Stage 1 works comply with the provisions of SEPP 44, by requiring appropriate management of potential koala habitats.

The Department considers that the long-term impacts on biodiversity due to operation of the future development can be assessed in further detail in the Stage 2 application. Notwithstanding, the Department is satisfied that the indirect operational impacts can be mitigated via future operational and management plans for the development. The impacts of the prescribed APZ are discussed below.

6.3.6 Bushfire and indirect impacts of Asset Protection Zones (Concept Proposal)

Asset Protection Zones (APZ) provisions and impacts on the adjoining land

The northern part of the site comprises bushfire prone land as identified in **Figure 31**. The proposal is classified as a Special Fire Protection Purposes (SFPP) development under section 100B of the *Rural Fires Act 1997*.

The EIS was supported by a Bushfire Assessment report (BSR), which stipulated an APZ of 67m between the Coastal Swamp Forest to the north and the proposed hospital envelope in accordance with the requirements of Planning for Bushfire Protection 2018 (PBP 2018 pre-release version), and 50m in accordance with PBP 2006. The proposed APZs in the EIS complied with the recommendations of the BSR in all directions, except the north-western corner where a setback of 43m was proposed between the envelope and the adjoining Lot 3 DP 828298. The APZ to the north-west partly relied on the managed vegetation within the adjoining Lot 3 SSF site. The assessment is based on the current use of the southern part of the site as grazing pastures and its mapping as BSAL.

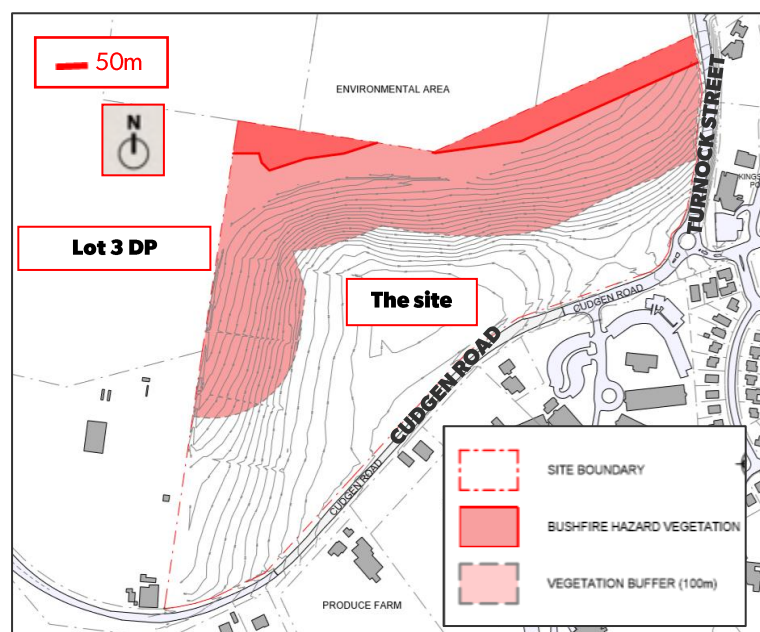


Figure 31 | Bushfire prone land (Source: Applicant's SRTs)

Community submissions on the EIS contended that the APZ distances should be increased to 40m - 57m (west) and 57m - 93m (north), considering the slope of the land and the proximity to the vegetation hazard, to comply with the PBP 2018. RFS supported the proposed APZ of 50m – 67m and the associated bushfire hazard assessment. OEH noted that the southern part of the adjoining lot 3 is mapped as coastal wetlands under the Coastal Management SEPP, which overrides the mapping as BSAL. Consequently, the site can potentially be revegetated in the future as wetlands or intensified agricultural use (such as orchards and plantations) that are considered to be unmanaged vegetation. The use of part of this land as the APZ for the future hospital would compromise its ability to be revegetated in the future as wetlands or for other agricultural activities.

Based on the comments from OEH and RFS, the SRTs relocated the building footprint providing a minimum APZ of 50m - 67m to all site boundaries. The location of the envelope would ensure that the entry or exit point to the future hospital building and service areas are not exposed to more than 10k/W of radiant heat exposure (PBP 2018), as advised by RFS.

The Department notes that only the northern / north-western part of the site is classified as bushfire prone land. Thus, the APZ provisions would relate to the identified vegetation hazards and not the proposed landscaped buffer on the southern or western sides. The Department is satisfied that the proposed location of the building footprint would comply with the APZ requirements to the vegetation hazards in all directions, and would have no adverse impact on the future revegetation potential of the coastal wetlands to the north-west of the site. In this regard, the location of the APZ is consistent with the aims of the Coastal Management SEPP and does not cause any significant impacts in terms of the requirements set out in clause 11 of the Coastal Management SEPP.

Impact of the APZ on the proximity area and coastal wetlands

The 50m – 67m APZ to the north would be located within the proximity area (**Figure 29**), which currently accommodates the sediment basins with minimal vegetation. During the EIS exhibition, OEH and Council requested detailed assessment of the impacts of the proposed APZ on the wetland, including the need to remove further trees or restrictions to the revegetation of the proximity area. Community submissions objected to the use of the proximity area as an APZ and questioned the consistency of the proposal with the Coastal Management SEPP.

In response, the RtS stated that the location of the APZ within the ecological buffer / proximity area was considered acceptable in the BDAR as this area is generally cleared of vegetation. To avoid indirect impacts on the coastal wetlands, the landscape masterplan proposes a zone of low maintenance vegetation in the buffer zone, in accordance with the PBP guidelines. The Applicant also emphasised that the APZ buffer was considered from the southern edge of the identified PCT zones and therefore would not result in further removal of trees within the wetlands.

The Department has assessed the public authority and community submissions and the Applicant's response, having regard to clause 11 of the Coastal Management SEPP, which allows for development to occur in the proximity areas subject to a detailed assessment of its impacts. The Department considers that subject to the future building footprint being confined within the proposed envelope, there would be no increase in the APZ distance and no further need to remove any vegetation within the wetland. To address the concerns raised by the community and the public authorities regarding the adverse impacts of the APZ on the proximity area, the Department has recommended a condition of consent requiring the submission of a detailed landscape plan for the Stage 2 application. The plan should include details of all plant species within the APZ / proximity area prepared in consultation with RFS, and guided by the VMP, BMP and PBP 2018. This would allow appropriate revegetation of the area without increasing the bushfire risk for the development. Subject to the above condition, the location of the APZ would not be inconsistent with the aims of the Coastal Management SEPP, and does not cause any significant impacts in terms of the requirements set out in clause 11 of the Coastal Management SEPP.

6.3.7 Stormwater management works and prescribed impacts on coastal wetlands

The existing stormwater runoff flows over the site into the northern wetland (north and west) via sheet flow, being directed by previously constructed depressions and gaps in an existing bund. A dam and a pump are located at the north-western corner of the site within the wetlands. A Council piped drainage line runs along the western boundary on the adjoining property draining stormwater from Cudgen Road into the wetland. Pre-construction surface water quality monitoring results for the site and from the adjoining wetlands reveal that the existing surface water is slightly acidic with elevated concentration of some nutrients and metals, but no hydrocarbon or pesticides.

The Department appointed an independent consultant "Alluvium" to assess the impacts of the drainage works, and specifically the quality and quantity of water flow into the wetland to the north of the site (**Appendix C**). The details of the proposed works and the assessment of the prescribed impacts on the coastal wetlands are provided below.

Stage 1 works

The EIS stated that the Stage 1 works include erosion and sediment controls, stripping and stockpiling of topsoil, earthworks within the site and construction of sections of the piped stormwater drainage system connecting to the existing stormwater basins (constructed as preliminary works), to cater for the stormwater runoff during construction. The Applicant also intends that these Stage 1 works provide the basis for the stormwater management to meet the future needs of the development outlined under the Concept Proposal.

In its review of the proposed works, OEH raised concerns that the submitted drawings did not reflect the correct location and sizes of the existing sediment basins on the site. OEH also raised concerns regarding the impact of the sediment laden water on the coastal wetlands. Similar concerns were raised by Council and community submissions. The independent consultant requested clarification regarding the impacts of the impervious areas on the site during construction works.

In response, the RtS and SRTS outline that Stage 1 drainage works would be limited to directing stormwater from disturbed areas of the site to the sediment basins as identified in the updated Soil and Water Management Plan

(SWMP) (see **Figure 15**). The RtS clarified that the Stage 1 works would result in a marginal increase in the impervious areas by sealing approximately 4ha of haul roads and carparks to control dust. However, the stormwater design would mimic natural flows and minimise impacts on the floodplain during the construction works. A series of mitigation measures are included in the BDAR for sediment control in Stage 1, including the use of an alternate flocculant in lieu of gypsum (standard industrial practise) in the sediment basins to avoid adverse impacts on two of the pH dependent threatened species (Wallum froglet and Olongburra frog) in the wetlands. Appropriate techniques are also proposed to monitor the surface water quality at regular intervals.

The Department's independent consultant reviewed the drainage plans for Stage 1 and commented that the sediment basin volumes in the SWMP are generally appropriate, based on the catchment area of a sensitive receiving environment, except the basin at the north-western corner. The consultant recommended that the size of the existing basin at the north-western corner should be a minimum of 4000m³, to appropriately manage the directed water prior to discharge into the wetlands.

Based on the above comments, the Department has recommended a condition requiring the volume of this basin to be a minimum of 4000m³ and notes that this may require minor alterations to the basin. The Department is satisfied that subject to the pre-development and the post-development stormwater flows being the same and water treatment strategies being incorporated, the Stage 1 works would not cause any significant impacts in terms of the requirements set out in clause 11 of the Coastal Management SEPP. The Department notes that the SWMP would be streamlined during the construction staging and would be operational throughout the duration of Stage 1. Conditions to this effect have been recommended.

Concept Proposal

The Concept Proposal includes details of the future stormwater drainage infrastructure. In principle, the post development stormwater from the site would comprise concentrated flows (in pipes) discharging into the wetlands via the recently constructed sediment basins, which are proposed to act as on-site detention basins in the future. The detailed design, size and volumes of the basins are to be specified in Stage 2. Bioretention basin(s) with additional pre-treatment measures (supported by detailed analysis such as a MUSIC model) are also proposed in conjunction with these basins to manage water quality of the runoff.

OEH reviewed the EIS and requested further assessment of the BDAR to address the prescribed impacts of water quality and quantity. Council's review of the proposal raised concerns that concentrated stormwater flows into the wetlands in lieu of the well distributed sheet flow would alter the flow characteristics of the site and therefore may not be lawful. Council recommended that the post-development flow regime should mimic the pre-development (i.e. water balance). Community submissions objected to the adverse impacts on the wetlands due to the proposed drainage works and sediment basins.

The independent consultant reviewed the proposed drainage works (as refined by the RtS) and requested additional information regarding the MUSIC model, stormwater flow characteristics, the bio-retention and detention basin designs, the flow regimes and measures to reduce the total runoff volume from the site.

In response, the Applicant confirmed that the stormwater drainage system in Stage 2 would be designed to mimic natural flow characteristics. Redesigned bio-retention and detention basins, with details of stormwater treatment prior to discharge into the wetlands (except large events), were submitted and supported by a MUSIC model. The BDAR's assessment concluded that the post development flow would be consistent with the existing land use. The characteristics of the wetland areas subject to periodic inundation would be retained, supporting the TECs in those locations. The BDAR recommended future rehabilitation of the existing farm dam to partly maintain the natural flow regime.

The Department's independent consultant reviewed the SRtS and was satisfied that the stormwater runoff leaving the developed area of the site can achieve Council's load-based water quality targets. However, the total nitrogen loads, and runoff volumes discharged from the site would be 55 per cent and 65 per cent higher than existing conditions. The application does not demonstrate how the increased stormwater runoff volumes would be managed in the future to mitigate flow regimes impacts on the downstream wetland.

OEH reviewed the SRtS and recommended that the planted species in the bio-retention basins should comply with the APZ guidelines and water sensitive urban design (WSUD) principles and best practise guidelines (such as Water by Design 2014) should be implemented, given that the basins are located within the proximity areas.

In response to the above, the Applicant submitted a peer – review report and a further MUSIC model from another stormwater management consultant supporting the previous reports and results submitted by the Applicant. An ecologist appointed by the Applicant reviewed the water quality and peak flow impacts and considered that the development would not result in significant adverse impacts on the integrity of the coastal wetlands. The Department's independent consultant reviewed the latest concept drainage plans and considers that a detailed assessment in this regard can only be conducted in conjunction with the Stage 2 application, to address the residual concerns.

The Department has carefully reviewed the Applicant's submission and the comments from the independent consultant and OEH, having regard to clause 11 of the Coastal Management SEPP. The Department is satisfied that the Applicant proposes a concept stormwater management strategy for the future development on the site, which includes provisions to reduce the resultant impacts on the biophysical, hydrological or ecological integrity and surface / ground water quantity and quality of the adjoining coastal wetlands to a level that is not significant.

The Department notes that the adjoining wetland may be susceptible to impacts from increased discharge frequency and flow volumes during dry periods. In the absence of a detailed design and information regarding increase and frequency of runoff volumes (not only the peak flows), the overall impact of the altered flow characteristics, the proposed increase in the water quantity and / or the nutrient loads on the vegetation and fauna in the wetlands cannot be fully assessed in this instance.

To ensure that the impacts of the drainage works are adequately assessed in Stage 2, the Department has recommended the following conditions of consent:

- detailed flow regime analysis that demonstrates that the development would not significantly impact on the quantity of surface and groundwater flows to and from the adjacent coastal wetland.
- detailed stormwater plans including evaluation of hydrology from the development over a representative continuous long-term period (20 years minimum), including consideration of a range of indicators relevant to protection of the downstream coastal wetland ecology (such as dry spells, low flow duration and high flow frequency analysis).
- assessment of the localised impact of the stormwater discharges to the coastal wetland and details of measures to manage increased stormwater volumes.
- consistency of the catchment areas for Stage 2 requirements with Stage 1 and sizes / volumes and number of basins
- assessment of impacts of the nutrient load increase on the biophysical and ecological integrity of the wetland and incorporation of additional WSUD principles to improve the water quality impacts.
- review of the stormwater management system by an ecologist to confirm that the future stormwater runoff volume, flow characteristics and any increase in the nutrient loads in Stage 2 would not have a significant impact on any of the identified EECs and TECs within the wetland to the north.

Subject to detailed studies in conjunction with the design and operation of the hospital, based on the concept stormwater strategy and calculations, the Department considers that the drainage works would not compromise the environmental qualities of the coastal wetlands, the proximity area and the biodiversity relying on the wetland habitat.

6.3.8 Other prescribed impacts on threatened species and ecological communities

The site is located within a mapped regional fauna corridor with an existing wildlife fence on the road reserve alongside Turnock Street. The revised BDAR assessed the prescribed impacts of the development on connectivity of different areas of habitat of threatened species, movement of threatened species and potential impact of vehicle strikes (including aircraft), for the Concept Proposal and Stage 1 works.

Stage 1 works

The BDAR noted that in addition to the PCTs along the northern boundary, the farmlands within the site previously provided connectivity to the habitats of birds and mammals of the wetland. While recognising the reduced connectivity due to proposed clearing of small areas of vegetation in Stage 1, the BDAR concludes that these 'stepping stone' habitats can be reinstated by Stage 2 works and achieved after completion of the works on the site. In this regard, the concept landscape plan (**Figure 20**) identifies a 10m wide vegetation buffer along the western boundary, additional buffer along the Turnock Street frontage and rain gardens in the southern portion of the site that would allow for connectivity between habitats as well as species movement within the site.

Temporary fencing would be installed during the Stage 1 works to facilitate movement of arboreal marsupials such as koalas within and outside the site throughout the duration of construction on the site. The proposed Stage 1 works would not involve any aircrafts that may impact on birds or bats. To minimise possibilities of death of fauna due to construction vehicle strike, the BDAR recommends restricting the speed of construction vehicles; and the involvement of a fauna spotter with the operating machines in case of detected fauna on the site.

OEH and Council did not raise any concerns regarding the assessment of the above additional prescribed impacts in terms of clause 6.1 of the Biodiversity Conservation Regulation 2017. The Department acknowledges that species movement and habitat connectivity would be lost temporarily due to the construction works in Stage 1. However, the Department is satisfied that restoration of the 'stepping stone' habitats in Stage 2, installation of wildlife friendly fencing and on-site fauna management during construction works would minimise the prescribed impacts on fauna connectivity / movement including koalas. Recommended conditions of consent require the mitigation measures to be incorporated in the Stage 1 BMP and future assessment requirements for Stage 2.

Concept Proposal

The BDAR states that the Stage 2 landscaping works would include revegetated areas for future habitat connectivity of TECs and fauna. To facilitate fauna movement in the locality, no permanent boundary fencing would be proposed. To mitigate impacts due to vehicle strike, measures such as installation of roadside street lighting, wildlife warning signs, speed detectors and signs are to be integrated with the future site plan.

The BDAR outlines that the proposed rooftop helipad would likely be above the flight path altitude of any birds or bats. Therefore, it is not likely to cause death of birds due to aircraft strike. The helicopter movements are also proposed to be restricted during the day to avoid peak periods of flying fox activities.

OEH and Council raised no concerns in this regard and requested that the long-term BMP include measures to manage koala food trees in addition to the above recommendations in the BDAR. OEH consider that the provision of the 10m and 30m wide vegetative buffers would assist in maintaining connectivity through the site fauna movement including koalas. These recommendations have been included in the conditions of consent by the Department. The Department is satisfied that the recommended conditions would ensure compliance with

the provisions of SEPP 44. The helicopter operations and impacts on flying fox activities would be reconsidered in a further BDAR for the Stage 2 application, in conjunction with the detailed design and operation of this facility.

6.3.9 Serious and irreversible impacts

The BDAR concludes that the proposed development would not result in any serious and irreversible impacts. OEH did not raise any concerns in this regard.

Based on the BDAR and OEH's comments, the Department has taken into consideration the impacts of the proposed development and recommended measures that will minimise those impacts and subject to those measures being adopted is of the opinion that there will be no serious or irreversible impacts in accordance with the provisions of section 7.16 of the BC Act.

6.4 Traffic, transport and parking

The EIS is supported by a Traffic Impact Assessment (TIA) assessing the existing and likely future traffic conditions along the surrounding road network due to the proposed development. The impact of the operation of the future TVH on the local traffic and the Stage 1 construction traffic are discussed below.

6.4.1 Existing scenario

Road network and future developments

The site fronts Cudgen Road, which is a rural collector road between the Kingscliff to the east and Tweed Coast Road, a regional road, to the west. A shared user path for pedestrians and cyclists runs along the entire Cudgen Road frontage of the site. Turnock Street, a rural arterial road connecting Kingscliff to Cudgen Road, runs along the eastern boundary of the site. Dominant traffic flows on Cudgen Road and Tweed Coast Road include commuter and school traffic, tractors and other agricultural vehicles. To its north, Tweed Coast Road, connects to the M1 (Pacific Highway), an RMS controlled highway between Sydney and Brisbane.

The TIA identifies that major development sites in the region would potentially contribute to housing and traffic within the region in the future (**Section 1.6**), irrespective of the proposed TVH. Additionally, the draft KLP contemplates additional housing demand in the locality in the next 25 years. To cater for the above impacts, the following network capacity upgrades are identified in Council's Tweed Road Development Strategy (TRDS):

- four-lane upgrade of Tweed Coast Road between the Pacific Highway and Casuarina
- localised east-west links, intersection improvements and connections between the future developments
- improvements to the Pacific Highway / Tweed Coast interchange in consultation with RMS.

While timing of the future developments is unknown, the Department notes that a section 7.11 Plan No. 4 – Tweed Road Contributions Plan is in place to secure funding for the Tweed Coast Road upgrade in the future.

Existing network capacity

The TIA includes results of traffic surveys at identified intersections and tube counts near the site (**Figure 32**).

Background traffic volumes at the identified intersections in 2023 and 2033 have been modelled based on existing and forecast traffic from the future developments in the region. SIDRA analysis of the background traffic volumes at the above intersections identify that in 2023 (estimated year of the hospital opening) certain lanes within the Tweed Coast Road / Cudgen Road intersection would operate outside acceptable levels of service (LoS) during the AM, PM and peak vehicle hour trips (PVT – 3pm – 4pm), being LoS D for the overall intersection with some lanes operating at LoS E and LoS F. The TIA also notes that in 2033, the Tweed Coast Road / Cudgen Road intersection would operate outside acceptable performance limits without any upgrade works. The impacts of the additional traffic due to the TVH on the above intersections are discussed in this scenario.

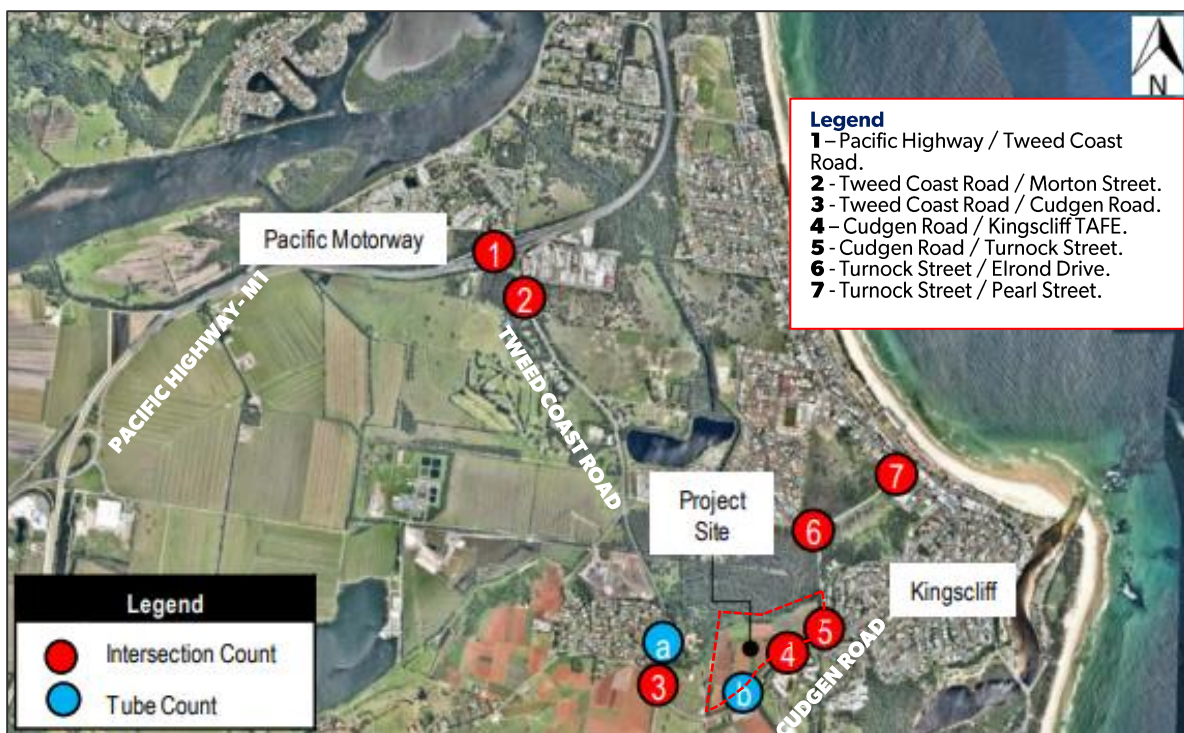


Figure 32 | Identified intersections in the vicinity of the site (Source: Applicant's EIS)

6.4.2 Network Capacity (Concept Proposal)

Design traffic volumes

Applying the RMS Guide to Traffic Generating Developments (the Guide), the TIA estimates the peak hour trips in the morning (MVT – 8am to 9am), evening (EVT – 5pm to 6pm) and the hour of peak traffic generation (PVT – 3pm to 4pm) due to the future TVH, as identified in **Figure 33**.

In the calculations, the TIA assumed that the hospital would include a maximum yield of 430 beds and 1050 average number of staff per weekday day shift (in accordance with the criteria adopted in the Guide).

Land Use	Yield	Peak	Peak Hour Trip Rate	Peak Hour Trips
Hospital	430 beds and 1,050 staff (ASDS)	MVT	$MVT = -10.21 + 0.47B + 0.06ASDS$	255
		EVT	$EVT = -2.84 + 0.25B + 0.4ASDS$	525
		PVT	$PVT = -14.69 + 0.69B + 0.31ASDS$	608

Figure 33 | Peak hour trips generation by the proposed Tweed Valley Hospital (Source: Applicant's EIS)

In the absence of any specific rates in the Guide, the TIA utilises the Institute of Transportation Engineers (ITE) daily rate of 11.81 trips / bed / day for hospitals and estimates that the TVH would generate up to 5078 daily vehicle trips, 150 - 300 daily pedestrian trips and 50 daily cyclist trips.

In its review of the EIS, RMS supported the Applicant's baseline studies and the predictions of traffic impacts on the local road network, while NSW TAFE sought clarification regarding the adopted traffic generation rates. Community submissions raised concerns regarding traffic congestion in the locality due to the additional traffic, and potential conflicts with slow moving agricultural vehicles on the surrounding roads.

The TIA addendum clarified the basis for the adopted traffic generation rates. The Department considers this to be acceptable based on the advice from RMS. The Department has recommended conditions requiring the Stage 2 application to include measures that would reduce conflicts between the hospital traffic and the agricultural vehicles.

The Department has recommended a condition requiring the Applicant to provide details of the total number of beds in the Stage 2 application and a detailed assessment of the additional impacts, in case of any increase in the estimated bed or staff numbers (as a worst-case scenario).

To assess the impact of the additional traffic generated by the development, the TIA includes SIDRA analysis of the identified intersections (**Figure 32**) with the design traffic volumes (TVH traffic plus background) for 2023 and 2033. The analysis concludes that the identified intersections are expected to perform at acceptable levels of service, considering the design traffic scenarios (2023 and 2033), except for the Tweed Coast Road / Cudgen Road intersection. The intersection performances and future network capacity are discussed below.

Tweed Coast Road / Cudgen Road intersection upgrade

The EIS proposed a number of capacity upgrades to the above intersection to cater for the design traffic volumes in 2023. The proposed works relied on the four-lane upgrade to Tweed Coast Road and other interim upgrades by Council (based on Council's upgrade plans as noted above). The EIS concluded that subject to the implementation of all of the identified upgrade works, the overall intersection would operate at LoS B and the queuing lengths would be acceptable.

During the EIS exhibition, Council and TfNSW recommended that a scenario with no upgrades to Tweed Coast Road or interim upgrade works undertaken by Council should be considered due to uncertainty of these works.

In response, the RtS amended the scope of works to include Tweed Coast Road / Cudgen Road intersection upgrade, prior to the operation of the hospital as identified in **Figure 34**.

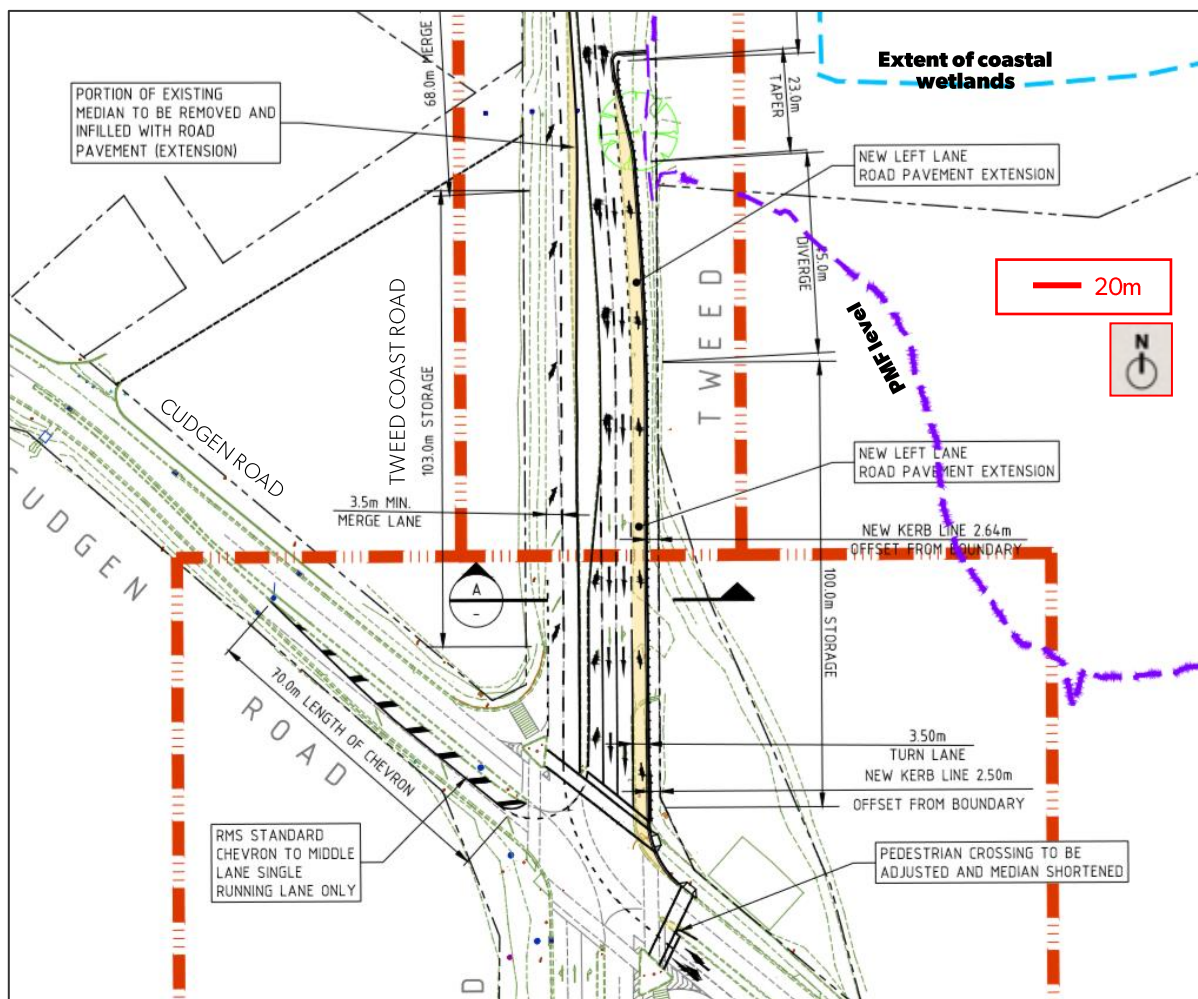


Figure 34 | Tweed Coast Road / Cudgen Road intersection upgrade (Source: Applicant's SRtS)

The scope of works for the Tweed Coast Road / Cudgen Road intersection upgrades include:

- addition of a 100m southbound left-turn lane on Tweed Coast Road.
- phase sequence changes to allow the southbound left-turn to overlap with the westbound right-turn (i.e. possible with the provision of a dedicated southbound left-turn lane).
- lane discipline change for the two approach lanes on the south-eastern approach.
- extension of the northbound departure lane from approximately 85m to approximately 200m.
- conversion of the north-western leg departure to a single lane (through provision of chevron line marking).

In the review of the RtS and SRtS, RMS and the Department noted that the Applicant's proposal does not include all the upgrades that were initially considered in the EIS, such as extension of existing short lane to 150m for Cudgen Road (south - east) or 150m extension to one lane of Tweed Coast Road, south of the intersection.

The Department also noted from the SIDRA analysis of the intersection that while the overall performance of this intersection would be within the acceptable limit (LoS C), some of the lanes would operate at LoS D and LoS E, being below the acceptable limits. RMS considered that the performance of the intersection is likely to improve if the additional upgrade works to Cudgen Road and Tweed Coast Road south are included. However, further modelling of the intersection including these elements is required to confirm the performance level.

In response to the above concerns from RMS and the Department, the Applicant advised that the upgrade works, as proposed in the application, have been finalised in consultation with Council. Council's future road upgrade plans incorporate provisions for east-west links, further north of Cudgen Road. Following implementation of these links, the volume of traffic turning south-west on to Cudgen Road from Tweed Coast Road south, would reduce and therefore the anticipated lane extension on Cudgen Road may not be required in the long - term. The extension to Tweed Coast Road south may also not be required as major volumes of traffic are not expected to access the future hospital from Tweed Coast Road south. Notwithstanding, further consultation would be undertaken with RMS and Council regarding the final scope of the intersection upgrade works as part of the Stage 2 application, and if needed these additional works would be included.

RMS concurred with the Applicant's justification regarding the reduction of traffic volume on Cudgen Road in the future and the volume of traffic turning into Cudgen Road to access the future hospital, from the southern section of Tweed Coast Road. Given the above, the Department's assessment concludes that:

- the proposed traffic analysis and intersection modelling has adequately assessed the existing traffic scenario including the heavy vehicles.
- the Tweed Coast Road / Cudgen Road intersection would perform below the acceptable limits, considering background traffic volumes and no upgrade works, in 2023.
- proposed upgrades would improve this scenario, as the overall intersection would perform at LoS C
- the intersection design / scope would be considered in detail as part of the Stage 2 application to further improve the intersection performance.
- Council's plans to introduce additional local links in the future (beyond 2023) would improve the performance of this intersection in the long term. The timing of these works is beyond the scope of the current application.
- as such, the proposed intersection upgrade designs are being undertaken in consultation with Council and are commensurate with Council's plans for the four-lane upgrade to Tweed Coast Road.

The Department has recommended conditions of consent requiring that details of the scope, timing and design of the capacity and performance upgrades to Tweed Coast Road / Cudgen Road be provided in Stage 2 in consultation with Council and include all other upgrade works in addition to that in **Figure 34**, if recommended by Council. Subject to the implementation of the above condition, the Department is satisfied that the proposed

upgrades to the intersection would satisfactorily accommodate the design traffic volumes in 2023, independent of the implementation of the four-lane upgrade of Tweed Coast Road by Council.

With regard to the design traffic scenario in 2033, the Applicant argued that there is a funding mechanism in place via Council's 'Section 7.11 plan' and that a strong level of certainty exists regarding the delivery of the four-lane upgrade works to Tweed Coast Road. The TIA concluded that the implementation of the TRDS, including the Tweed Coast Road upgrade and the future planned east-west links between Tweed Coast Road and Kingscliff, would reduce traffic volumes on Cudgen Road and improve the operation of this intersection.

The Department's review of the design traffic modelling of the intersection in 2033 notes that some lanes would operate at LoS E, notwithstanding the four-lane upgrade of Tweed Coast Road, which is expected to be delivered by Council under the TRDS. However, additional future planned east-west links between Tweed Coast Road and Kingscliff would reduce the traffic volumes turning left on to Cudgen Road from Tweed Coast Road (north of the intersection) and improve this situation.

Cudgen Road / Kingscliff TAFE intersection

In their review of the EIS, NSW TAFE requested further details of modelling for the Cudgen Road / Kingscliff TAFE intersection (no.4 in **Figure 32**), impacts of the Turnock Street roundabout performance on this intersection and clarification that the proposed intersection upgrades would cater for the future medical precinct.

In response, the RtS advised that the Cudgen Road / Kingscliff TAFE intersection is modelled as a 'seagull intersection' reflecting the actual driver behaviour in the SIDRA analysis. A review of SIDRA results for the queuing of the design traffic volumes in the 2033 identified that traffic queues along the south-western leg of the Cudgen Road / Turnock Street roundabout (no.5 in **Figure 32**) would have a maximum length of 46m. This would not impact on the Cudgen Road / Kingscliff TAFE, located 120m south-west of the roundabout. The public authorities raised no further concerns. The Department is satisfied with the Applicant's response.

Cudgen Road access signalised intersection

The traffic surveys in the EIS note that due to the operation of the hospital, the major road flows on Cudgen Road would exceed 600 vehicles / hour (VPH) in each direction during the peak hours and the road flows at other times would exceed 200 VPH. Additionally, pedestrians are expected to utilise the T-intersection on Cudgen Road, being the proposed main entry to the hospital (**Figure 18**). To cater for the additional traffic volumes, to reduce traffic queuing and to ensure pedestrian safety at the main hospital entry, this intersection is proposed to be signalised in the future along with pedestrian crossings.

The Department and RMS are satisfied with the Applicant's response, subject to the signalisation of the intersection being completed prior to the commencement of the operation of the hospital in Stage 2 and relevant regulatory approvals being obtained by the Applicant, prior to the installation of the signals.

6.4.3 Site access and pedestrian facilities

Stage 1 works

The EIS indicated that two vehicular access points to the site and associated improvements to the Turnock Street roundabout would be undertaken as preliminary works (not requiring consent). However, in response to concerns by Council and the community, the RtS amended the scope of the Stage 1 works to include site access arrangements as identified in (**Figure 35**).

The Applicant advised that the site access arrangements include the following elements that are designed to ensure safe ingress and egress of the construction vehicles as well as align with the service entry / exit points for the future TVH:

- a new vehicular access from the south-western part of the Cudgen Road frontage (access A) including a 3.5m slip lane, pedestrian crossing and road widening allowing left only access to the site.
- a new two-lane access point on the north-western side of the Turnock Street roundabout (access D) allowing left turn only, reconfiguration of the median, footpath connection and pedestrian refuge.

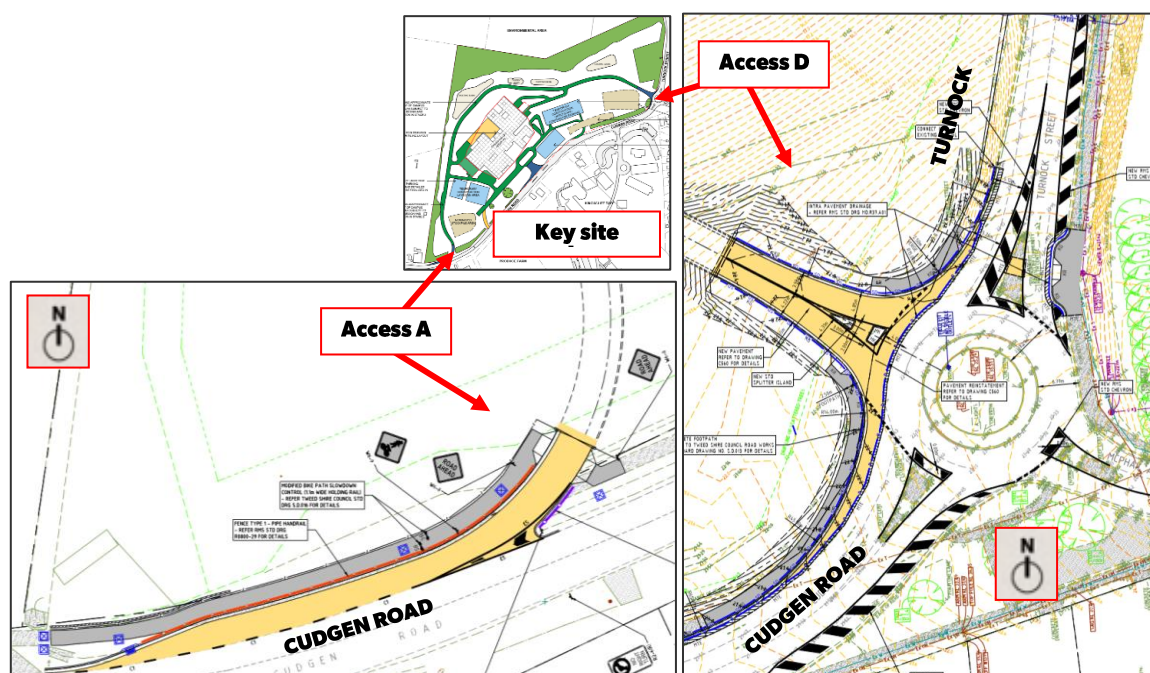


Figure 35 | Details of site access and roundabout improvements (Source: Applicant's SRTS)

In its review of access A and D, Council considered that the slip lane at access A should be replaced by a standard driveway crossover to allow safe movement of pedestrians to improve pedestrian safety at this point. In response, the RtS argued that the proposed access A has been designed in consultation with emergency services as a higher order treatment in accordance with Austroads design and turn warrants guidelines, so that it can be used by emergency vehicles such as ambulances in conjunction with the future hospital. The proposed arrangement would allow the left-turning vehicles to leave the through travel lanes prior to reducing speed and therefore minimise the risk of rear – end collisions. Additional line markings, kerb ramps (for cyclists and other users of the shared path) and pedestrian safety devices have been proposed in accordance with the relevant guidelines to address the safety of pedestrians and cyclists at this location.

Council reviewed the RtS and maintained its concerns regarding the design of this access, noting the Applicant's intent to utilise this slip lane to provide access for emergency vehicles, service vehicles and staff vehicles after completion of Stage 2. Council commented that the high volume of future traffic on this slip lane, with a speed of 40km / hr, may lead to risks of more accidents, when compared to an ordinary driveway crossover. Council recommended that a deceleration lane be considered in lieu of the slip lane to achieve the same outcome with a safer ingress.

The Department has reviewed Council's comments and the Applicant's arguments regarding the design of access A. To address Council's concerns regarding safety in relation to the design of this access, the Department has recommended the following conditions requiring the Applicant to:

- undertake additional analysis of the design options for this access including the option for a deceleration lane in lieu of the proposed slip lane, in consultation with Council
- include a Road Safety Evaluation for each design to establish the safety parameters for each design

- submit the amended design for approval by the Planning Secretary, prior to the commencement of these works in Stage 1.

The Department is satisfied that the additional analysis of the safety of this access in consultation with Council and further amendments to the design, if required as a result of this analysis, would ensure that pedestrian safety is not compromised due to the design of the access, noting its intended use in the future.

Concept Proposal

The Concept Proposal outlines that the future development would include the following vehicular access points:

- access A and D – left turn only access points for service / emergency vehicles and authorised vehicles aligning with proposed access A and D in Stage 1.
- access B – signalised intersection for the main entry to the site (Section 6.4.2).
- access C – additional vehicular entry (left in) to the public / staff car parks on the eastern side of the site.

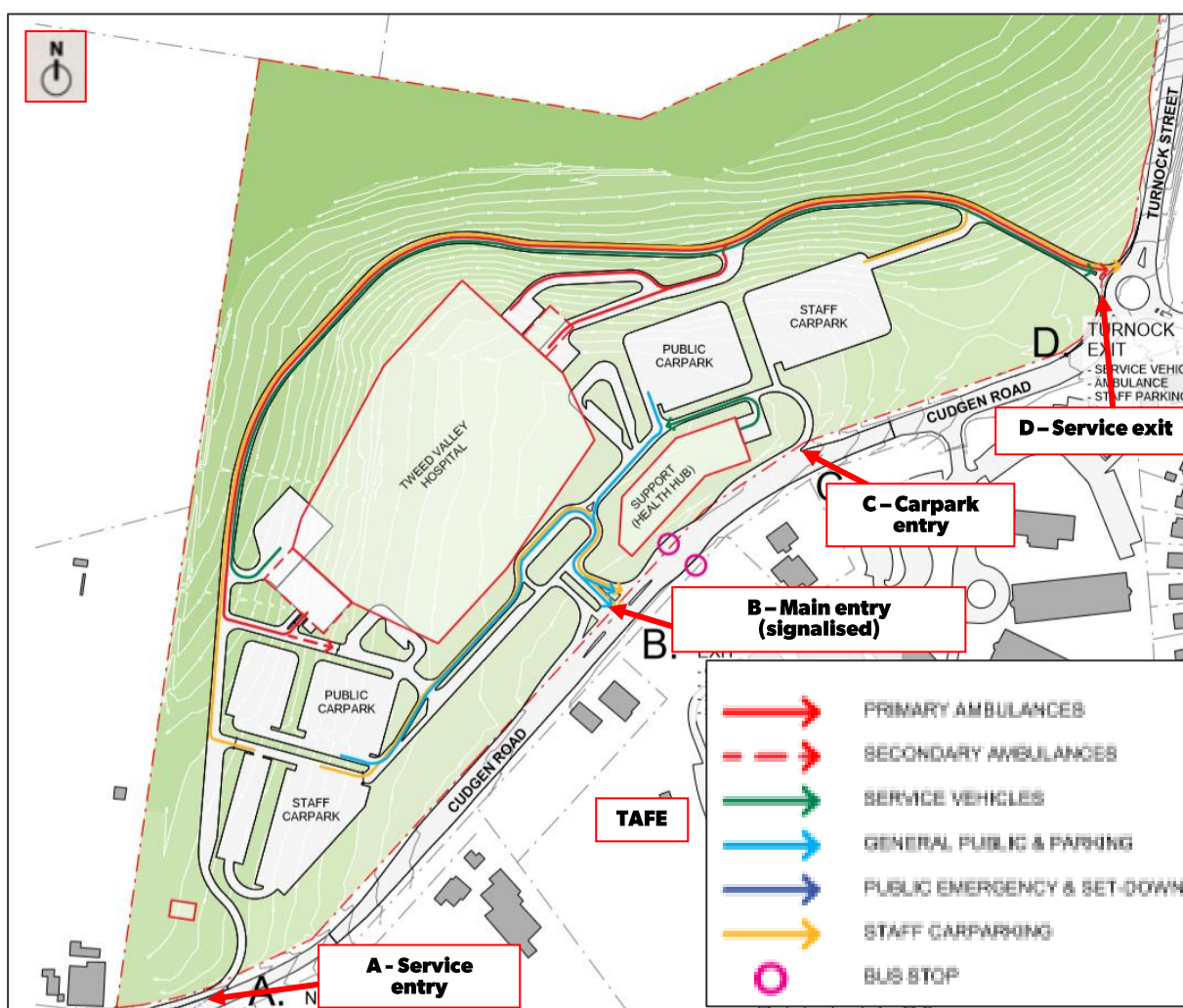


Figure 36 | Site access points and internal traffic movements (Source: Applicant's SRTS)

In its review of the EIS, Council raised concerns regarding the design of access A and C (being slip lanes) in relation to pedestrian safety and requested additional information to demonstrate that continuous pedestrian connections can be maintained throughout the site frontage and on the opposite side of Cudgen Road. Some public submissions questioned the accessibility of the elderly and vulnerable community to the site due to lack of pedestrian connections from the bus stops or pedestrian crossings at intersections.

In response, the RtS included a pedestrian connection strategy (**Figure 19**) demonstrating continuous pedestrian connections and crossings on the external road network near the site. Council maintained its concerns over the design of access A and recommended that if this design is approved, then no staff vehicles should be allowed to utilise access A in the future as this would impact on the safety of the pedestrians. The locations of the proposed vehicular access points are identified in **Figure 36**.

The Department has reviewed the future site access arrangements and considers that the proposed location of the driveways and the one-way traffic movements would allow satisfactory separation of service vehicles and public or staff vehicles. The proposed access A and D would be capable of accommodating a range of vehicles including articulated vehicles (19m). Additionally, signalisation of the Cudgen Road access would ensure safe ingress / egress of vehicles, pedestrians and cyclists. The Department notes Council's concerns regarding pedestrian safety at access A and considers that this matter would be resolved in Stage 1, as discussed in the previous section (Stage 1 works). The impact of the access C on the safety of pedestrian and cyclists can also be assessed in detail in conjunction with the detailed design and construction of the hospital. Conditions to this effect are recommended.

6.4.4 Public transport (Concept Proposal)

The availability of public transport in the locality is discussed in **Section 1.3**. During the exhibition of EIS, TfNSW commented that given the limited availability of public transport within this location, approximately 150 public transport trips would be generated during the peak periods of operation of the hospital. TfNSW requested that the Applicant consider preparing a Green Travel Plan (GTP) with procedures to achieve an improved modal split for the development. Additionally, TfNSW recommended conditions regarding bus stop design, additional consultation with bus operators and access grade designs. Council raised concerns regarding the physical accessibility to the health services within the TVH site by the elderly and vulnerable community due to lack of public transport services in the area.

In response to the TfNSW comments, the TIA addendum indicates that the Applicant has initiated the establishment of a Transport Access and Parking (TAP) working group to investigate alternate transport strategies to reduce the impacts of the traffic generated by the TVH. It is anticipated that potential recommendations would include the preparation and implementation of a GTP that would align with modal targets in the TfNSW's Regional NSW Services and Infrastructure Plan. The Social and Economic Assessment Report supporting the EIS notes that the Applicant would initiate plans to improve public transport services between the Tweed Heads town centre and the TVH site, specifically for the elderly and vulnerable community in the region.

The Department reviewed the TIA regarding public transport services and supports the Applicant's approach to establish the TAP, consult with TfNSW and local bus operators, improve the community transport provisions, prepare a GTP and replace the existing bus stops with improved facilities. The Department has recommended a condition requiring the Stage 2 application to include details of a community transportation plan facilitating public transport between Tweed Heads and Kingscliff, to assist the transportation of the elderly and vulnerable community to the TVH site and to provide details of the GTP and the relevant actions to achieve the targeted mode share.

6.4.5 Car parking

Stage 1 works

As noted in **Figure 14**, the proposed Stage 1 works include sealed areas that would be capable of accommodating construction workers vehicles (discussed in **Section 6.4.6**).

Concept Proposal

The Concept Proposal includes two dedicated staff car parks and two dedicated public car parks on either side of the hospital envelope (**Figure 36**). The EIS anticipates that the car parks would accommodate up to 700 cars, which exceeds the requirements of RMS' Guide to Traffic Generating Development and Council's Development Control Plan (DCP). In addition, the TIA also proposes 43 bicycle parking spaces. The TIA recommends that a car parking management plan should be developed as part of Stage 2 to detail the parking fee structure and assess the impacts of the paid parking facilities on the surrounding road network.

Public authorities and community submissions have raised concerns regarding reduced accessibility to the site due to paid parking arrangements and the resultant impacts onto the surrounding residential and street parking, such as Oxford Street and Cambridge Street.

The RtS advised that the TAP would conduct a review of the car parking demand, supply and operations as well as the future fee structure of the parking areas within the site. The TAP would develop strategies to mitigate any resultant impacts on the available parking spaces on the surrounding streets due to paid parking within the site. The strategies would be developed as part of the Stage 2 application, in consultation with relevant stakeholders including Kingscliff TAFE and Council.

The Department considers that while the Concept Proposal provides satisfactory on-site parking provisions to cater for the future development, paid parking arrangements within the site may impact on the availability of the unrestricted parking spaces in the surrounding locality. Therefore, the Department has recommended a condition requiring the Applicant to provide details of the parking fee structure in the Stage 2 application, include additional assessment of the impacts of a paid parking provision within the site and provide details of the TAP recommendations. The Stage 2 application would also include details of bicycle parking and end-of-trip facilities for the staff to encourage mode share.

6.4.6 Construction traffic impacts (Stage 1 works)

The EIS states that the Stage 1 works would be undertaken over a period of approximately 10 months (excluding shutdown periods). The access and traffic works would be restricted to the site, the Cudgen Road reserve in front of the site and the Turnock Street roundabout. The TIA includes a preliminary Construction Traffic Management Plan (CTMP), which estimates the average daily construction vehicle movements (two way) to be between 70 heavy vehicles to 110 light vehicles. As a worst-case scenario, the TIA estimates that the site can generate up to 125 peak hour vehicle trips, although an average of 180 trips are expected to and from the site every day. The construction vehicles (ranging between truck and dog to light vehicles) are expected to utilise Cudgen Road, Tweed Coast Road and the Pacific Highway.

During the exhibition of the EIS, the community raised concerns regarding the impact of the construction traffic on local roads, movement of tractors / machinery and impacts of construction worker vehicles on the surrounding parking spaces in the locality.

In response the RtS included an addendum to the TIA, which estimates that 25 - 40 cars (40 - 50 workers) would access the site during early works and up to 250 - 300 cars (over 400 workers) during the main phase of works. All the cars are proposed to be accommodated on the site in identified construction worker parking areas. Additionally, public transport is available in the locality to cater for the remaining workers (as discussed in **Section 1.3** and **Section 6.4.4**). The RtS states that the removed spoil / topsoil would be stockpiled on the

site, which would minimise the bulk of materials required to be physically moved to and from the site by truck. This in turn would reduce the overall truck movements in the locality. Notwithstanding, the preliminary CTMP acknowledges that the additional traffic during construction works for Stage 1 may result in some delays in the local road network, nearby intersections and haulage routes. To reduce this impact, the Applicant's TIA recommends that all heavy vehicle movements should take place outside the commuter and school peak periods (typically 8am – 9am and 2:45pm – 4:15pm). A detailed CTMP for the Stage 1 works would include a range of measures to manage peak construction traffic movements through delivery, staff scheduling, a traffic control plan (TCP) for specific road closure periods, manage the movement of slow-moving agricultural vehicles and external works within road reserves.

The Department has reviewed the preliminary CTMP and the addendum to the TIA as well as the submissions. The Department is satisfied that the predicted construction vehicle movements would be significantly less than the future hospital operations, and could be accommodated within the capacity of the existing road network. Any local traffic disruptions would be temporary and can be managed via specific traffic control measures in the CTMP. To ensure appropriate traffic management during the Stage 1 works, the Department has recommended a condition requiring the preparation of a detailed CTMP with details of the impacts on traffic, pedestrian, cyclists and agricultural vehicles, in consultation with the relevant regulators. Additional conditions require restriction of construction vehicle movements to regional roads, the submission of TCPs and on-site parking by construction workers. The Department is satisfied that subject to the implementation of the CTMP, the impacts of the construction works on local traffic can be appropriately managed.

6.5 Noise Impacts

The site is located in proximity to education and residential receivers. The EIS is supported by a Noise and Vibration Impact Assessment (NVIA), identifying sensitive receivers in three noise catchments (**Figure 37**).

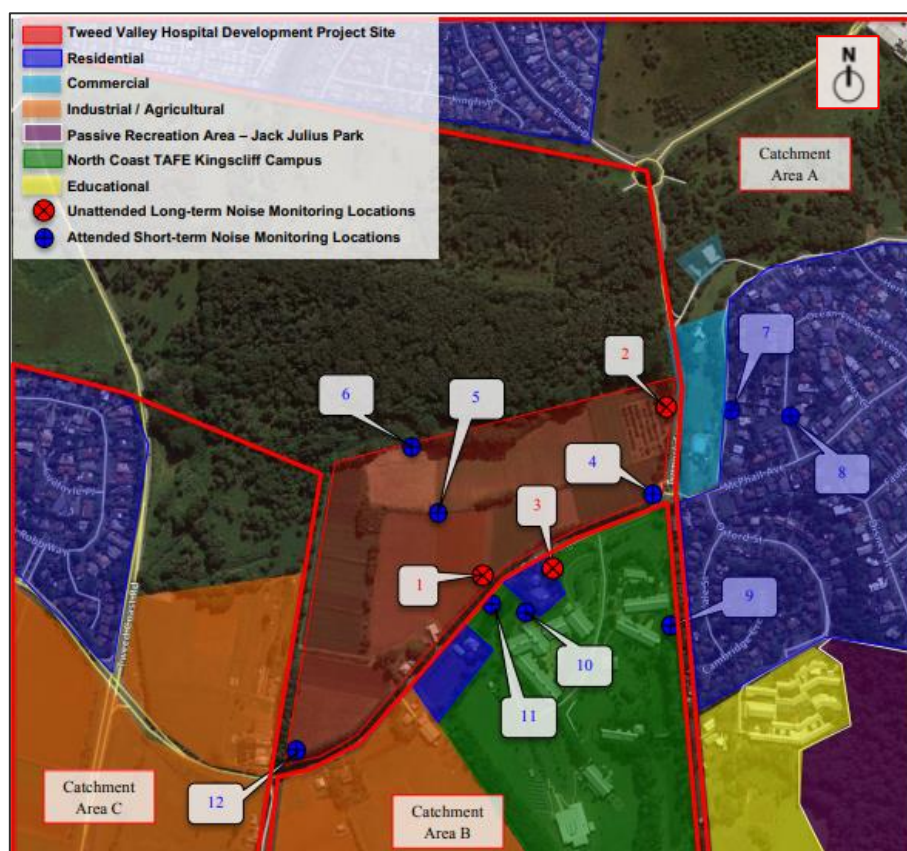


Figure 37 | Location of noise sensitive receivers (Source: Applicant's EIS)

6.5.1 Noise and vibration impacts (Stage 1 Works)

The NVIA assesses the potential noise impacts associated with the Stage 1 works and includes a preliminary Construction Noise and Vibration Management Plan (CNVMP). The NVIA establishes a project specific noise management level (NML) of 55dB(A) for residential catchment A, 57dB(A) for residential catchment B, 75dB(A) for the industrial / agricultural premises, educational receivers 45 – 55 dB(A), 70 dB(A) for commercial premises and 60dB(A) for passive recreation areas, having regard to the Interim Construction Noise Guideline (ICNG) and the background noise level (RBL) at the receiving catchments.

The NVIA notes that the construction works noise impacts would be greatest at Residential Catchment B and the educational receiver (TAFE). Noise from various plant and equipment operating individually are generally predicted to be up to 24dB above the established NMLs and the highly noise affected levels (75dB(A)) at both receivers, due to their proximity to the site. The majority of the noisy construction activities include on-site rock crushing and piling works. The proposed roadworks at access A and access D would also result in significant noise exceedance (up to 28dB) above the established NMLs at Residential Catchment B, the agricultural receivers in this catchment and some level of exceedance at the educational receiver (10 – 12dB at the TAFE). To minimise and manage the impacts of the noise exceedances, the preliminary CNVMP includes a number of mitigation measures such as: limiting activities to standard construction hours in the ICNG; introducing respite periods where activities exceed the 75 dB(A) limit in the ICNG; temporary screening of equipment; increasing the distance of the noise generating equipment from the affected receiver whereby a noise level reduction up to 19dB can be achieved; and hoardings along the site boundaries.

The NVIA states that impacts of vibration due to construction works are not predicted to be significant provided the vibration generating equipment are operated at stipulated working distances, which is achievable on the site. The NVIA recommends that vibration surveys of key equipment be undertaken prior to commencement of operation of that equipment.

The Department notes that the EIS initially proposed extended construction hours on Saturdays, outside the ICNG guidelines. However, during the exhibition of the EIS, significant community and public authority concerns were raised regarding the impacts of construction noise on the surrounding locality and the associated mitigation measures.

In response, the RtS amended the construction hours to comply with the standard hours in the ICNG. The RtS included an addendum to the NVIA with additional mitigation measures specific to the construction activities on the site such as: no rock blasting; hoardings up to 2.4m in height; and noise monitoring provisions.

The Department has reviewed the EIS, RtS, and the submissions with regard to noise impacts of the Stage 1 works. The Department is satisfied that the assessment of the noise impact is adequate in identifying the impacts of the proposal during the Stage 1 works. While the predicted construction noise levels would exceed the NMLs at sensitive receivers, the impacts can be addressed through the proposed management and mitigation measures. The residual impacts can be managed through appropriate conditions of consent such as unattended noise monitoring at the southern and eastern boundaries, avoiding rock crushing and reusing the boulders for construction works (where possible), procedures to implement mitigation measures for construction noise louder than 75dB(A) L_{Aeq} (15 minutes), working hour restrictions and respite periods aligning with noise sensitive activities in TAFE or Kingscliff High School, regular consultation with nearby sensitive receivers, vibration criteria and management mechanisms to protect surrounding properties and confirmation of final noise mitigation in a final CNVMP. Subject to the preparation of a final CNVMP prior to commencement of works, compliance with the above conditions and implementation of the proposed mitigation measures, the Department is satisfied that construction noise impacts can be appropriately managed.

6.5.2 Operational noise impacts (Concept Proposal)

The site is located in close proximity to identified flight paths for aircrafts approaching or departing the GCA. A hospital is categorised as a sensitive land use in relation to its exposure to aircraft noise. Major and regional airports have developed Australian Noise Exposure Forecast (ANEF) contour maps for show a forecast of aircraft noise levels that are expected to exist in the future. AS 2021-2015 Acoustics – Aircraft Noise Intrusions – Building Siting and Construction, provides that a hospital should not be sited within the ANEF 25 contour. The ANEF contours in the GCA masterplan identify that the site is located outside the 2015 ANEF 20 Contour (distance greater than ANEF 25 contour). Consequently, it is unlikely that the hospital would be impacted by noise due to movement of aircrafts and is consistent with clause 7.9 of the TLEP 2014.

The noise generating activities associated with the future hospital would likely include the operation of plant and machinery, the operation of the helipad and traffic associated with the operations of the hospital. Noise impacts from the hospital operations, and potential noise impacts associated with helicopter flight paths on surrounding residential properties were identified as an issue in the public submissions.

In the absence of detailed design and site plan, the NVIA (as refined by the RtS) has provided a preliminary assessment of the noise generating activities within the site and the allowable noise limits against the project noise trigger levels based on amenity and intrusiveness levels). The NVIA states that the detailed design in Stage 2 should consider the strategic planning to separate activities such car parks, loading areas and pedestrian movements, with appropriate screening, to ensure that the identified trigger levels are not exceeded.

The noise emission from the 24 - hour plant operations should be restricted to 43 dB(A) at the nearest residential receivers (Catchment B). Plant rooms and external plant should be designed to achieve 70 - 75 dB(A) at one metre from a plant room, or additional acoustic measures applied in case this criterion is not achieved.

The additional traffic volume in relation to the TVH is predicted to increase the existing noise levels on Cudgen Road, Turnock Street and Tweed Coast Road by less than 2dB, and therefore represents an insignificant effect on the ambient noise environment of the locality. The proposed signalised intersection at the Cudgen Road entry (access B), would change the characteristics of existing traffic noise as perceived by the existing residence at 764 Cudgen Road (opposite the TVH site). This impact is required to be assessed in detail in Stage 2.

The RtS includes an additional assessment of the noise and vibration and associated predicted noise levels to be generated during the construction works for the Tweed Coast Road / Cudgen Road intersection. The RtS notes that these works would exceed the highly noise affected levels (75dB(A)) at Residential Catchment C and would result in noise exceedances up to 34dB above the established NMLs, due to the proximity of the catchment to this site. The RtS recommends additional noise and vibration control measures that would be incorporated during these works in Stage 2.

The Applicant has advised that the future helicopter landing site (HLS) within the TVH and the future flight paths would be selected to avoid residential areas, where possible. The Applicant also advised that the helicopter movements would not be for emergency purposes but would comprise pre-planned patient transfers between hospitals. Thus, these movements would be restricted to day time with occasional inward movements at night. The Applicant advised that the total numbers of movements are not likely to exceed 10 each month with an average of six movements.

The Department has assessed the NVIA and the Aviation Report and considered the issues raised in the public submissions. The Department considers that noise from the traffic generation, plant and machinery could be mitigated through standard acoustic treatments and site planning that would need to be identified in acoustic assessment for the Stage 2. The helipad has been sited on the rooftop to minimise noise impacts on sensitive receivers and would be used infrequently, limiting the exposure to potential noise levels from operations of the

helipad. Notwithstanding the above, the Department recommends that the Stage 2 application include an assessment of the impacts from the helipad to determine if any additional attenuation measures are required.

The Department has also recommended a condition requiring a detailed noise and vibration impact assessment to ensure that noise and vibration impacts during the construction of the future hospital and the intersection upgrade works are properly addressed through the Stage 2 application and mitigation measures are incorporated.

6.6 Social and Economic Impacts

The EIS includes a Social and Economic Impact Assessment Report (SEIA) guided by the principles outlined in the Social Impact Assessment Guidelines developed by the International Association for Impact Assessment (IAIA, 2015). An assessment of the Applicant's SEIA and other relevant matters are provided below.

6.6.1 Social impacts of construction in the locality

Stage 1 works

During the exhibition of the EIS, a large number of community submissions raised concerns regarding the impacts of the construction works on the Kingscliff locality and the community. In relation to the Stage 1 works, the Department requested that additional assessment of the impacts of the construction works on the adjoining users, tourism seasons, educational uses and sourcing of construction workers be provided.

In response to the above submissions, the RtS includes an addendum to the SEIA, which identifies the social and economic impacts of Stage 1 works in categories as: impacts on surrounding residents and educational users; built environment impacts; risks of works adjoining rural lands; employment generation; gross regional product (GRP) during construction; and loss of agricultural land.

Mitigation measures in the SEIA (as refined by the RtS), including commitments regarding additional targeted consultation, are drawn from across the technical studies in the EIS (noise, traffic, dust) (discussed in **Section 6**). The SEIA states that the construction works would cause temporary traffic disruptions and have some impact on the tourists in the peak seasons. The SEIA also advises that a plan is being developed to identify and engage local workforce / industries during the Stage 1 works.

The Department's assessment of the EIS and RtS notes that the Stage 1 works would be temporary and therefore would not result in an irreversible impact on the tourism industry of Kingscliff or the local character of the area and the surrounding residents and educational users. The creation of employment opportunities, as well as engagement of local workforce during the construction works, are positive impacts of Stage 1 works. While recognising the positive impacts, the Department considers that the main social impacts of the Stage 1 works relate to the amenity of the community during the construction works on the site. The Department is satisfied that the amenity impacts can be managed via recommended conditions of consent regarding construction traffic, noise, dust control and visual impacts. In recognition of the proximity of sensitive receivers, the Department considers that the efficacy of mitigation and any residual or unforeseen effects can be adequately managed via direct communication with the targeted stakeholders. In this regard, the recommended conditions of consent require the Applicant to develop communication and community engagement strategies to inform and engage with the community throughout the duration of construction works.

Concept Proposal

The impacts of the construction of the hospital would be assessed in detail in the Stage 2 application.

6.6.2 Impacts of relocation of the facilities (Concept Proposal)

The EIS stated that upon completion of the TVH, the facilities within the TTH would be relocated to this site, which is located about 14km south of the Tweed Heads town centre and the TTH. The social and economic

impacts of the relocation of the TTH has been raised as a concern in the public submissions to the EIS, due to reduced accessibility of the health services, loss of jobs for the supply chains, removal of a key economic anchor and devaluation of properties surrounding the TTH. Council's submission to the EIS requested assessment of impacts on the local businesses in the Tweed Heads town centre and public transport provisions between the two sites. In response, the Applicant submitted an addendum to the SEIA addressing the concerns and reiterating the positive benefits of the proposal as discussed below.

- *physical accessibility* – While the TVH site is located at a drivable distance from the TTH site, the Applicant is developing plans to improve public transport services between the two sites, in consultation with TfNSW and the other local transport operators (such as Surfside). This would assist in ensuring accessibility to health services is maintained for the elderly and vulnerable community.
- *local businesses* – The SEIA recognises that local businesses in the Tweed Heads town centre currently benefit from the existing hospital and would be impacted when the TTH is vacated. The Applicant has nominated possible alternate future uses of the building including: aged care living; residential development; and tourism related uses.
- *loss of jobs* – The SEIA indicates that the resident workforce within Tweed Heads – Coolangatta area primarily cater for the service industries as well as health services that are not sited at the hospital. The demand for these industries and services would increase with the growth of population, independent of the hospital location. Thus, substantial loss of jobs at Tweed Heads town centre due to the relocation is not envisaged.
- *health related services* – The TVH would provide for additional beds, oncological services, operating theatres, maternity and renal facilities along with further opportunities for expansion within the site. However, a number of services that are currently located at the TTH do not currently form part of the scope of services at the TVH site. These include community health, oral health (non-surgical), breast screening services, the Tweed Clinical Education and Research Institute and the ambulance station. The Applicant has advised that these services would still be available within the catchment and would be better delivered if co-located with a community health facility located in or close to the Tweed Heads central business district (CBD). NNSWLHD has committed to establish the 'HealthOne' facility in the Tweed Heads CBD to co locate the above services with community health services and General Practitioners. The Applicant advises that the 'HealthOne' facility would complement the TVH, provide community and allied health services to the population of approximately 49% of the population in Tweed Shire LGA and would be a significant contribution to local health care.
- *criminal activities* – The vacant TTH building would likely reduce the existing passive surveillance opportunities, specifically at night-time. The proposed alternate uses of the TTH building would assist in preventing any crime in the locality due to the vacant site.
- *housing value* – The relocation of the hospital would occur within the same catchment with minimal impacts on the housing market in Tweed Heads town centre.
- *economic benefits* – The negative economic impacts of the relocation would be offset by the positive economic outcome in terms of its effects on employment and gross value added across the Tweed-Byron and NSW economy. In the medium to longer term, the hospital relocation would provide new economic and social infrastructure through strategic alternative uses of the TTH.
- *social benefits* – The relocation of the hospital from the TTH site would have positive impacts in relation to: reduced vehicle traffic at the town centre; improved opportunities for street activation and alfresco dining; reduced competition for parking space; decreased risk of hospital related violence; and increased livability effects for surrounding residents.

The Department has carefully assessed the relocation impacts and acknowledges the significant long-term benefits of the proposed expanded hospital site at Cudgen. The Applicant's assessment of the impacts on physical accessibility to the health services or job loss due to the relocation are also considered acceptable. The Department recognises that loss of supply chains / procurements (if any) may not have any relation with the relocation, which would physically remain within the same health catchment.

However, the Department notes the concerns that vacating the TTH would result in the loss of significant economic anchor land use for the Tweed Heads town centre. In this regard, the Department supports the Applicant's commitments regarding the transportation plans, the alternate uses of the TTH building and availability of the 'HealthOne' facility to mitigate the negative impacts of the relocation and benefit the regional economy in the long term. However, the timing of provision of these services and the location are outside the scope of this application and would be the Applicant's decision.

6.6.3 Impacts of the operation of the TVH on Kingscliff (Concept Proposal)

In the public submissions to the EIS, significant concerns were raised regarding the impact of the TVH on the built environment and lifestyle of Kingscliff, change in the economic driver from agriculture to health services as well as negative impacts on the local tourism industry. Council requested information regarding any provisions for affordable accommodation on or near the site catering for staff, carers, visitors and patients and measures such as accessible parking options for users of the TVH site.

In response to the above concerns, the SEIA addendum indicates that the impacts of the proposal on the built environment and agricultural land were considered in the technical studies supporting the EIS. The remaining concerns are the relevant management and mitigation measures, are discussed below:

- *lack of affordable housing for carer / staff in Kingscliff* – The SEIA states that majority of the employees drive to work from various localities. Therefore, requirement for onsite staff accommodation is not considered essential. The Applicant advised that there is sufficient space within the site for siting short term carer and visitor accommodation, and this matter would be subject of future development applications, if needed.
- *resident migration to Kingscliff due to the development and pressure on housing* – The SEIA notes that the TVH site is located within the same catchment as the TTH and would result in lower travel times for the patients from Byron Shire. Therefore, it is not likely that resident migration to Kingscliff area would be driven by the hospital only. As such, the draft KLP contemplates future housing development in the immediate area and includes capacity to accommodate this growth.
- *adverse impacts on the tourism industry of Kingscliff due to change in the local character of the area* – The SEIA clarifies that the broader tourism industry for the Tweed Heads-Coolangatta area or the local Kingscliff tourism industry are concentrated around the coastal area. The TVH development would not have a material impact on the local or broader tourism industry as the site is located at a reasonable distance from the centre of the Kingscliff township and beach. Notwithstanding, upgrades to nearby intersections, provision of on-site car parking and improvement to public transport are proposed to cater for the additional demand and improve the overall facilities in the locality.

The Department has assessed the operational impacts of the future hospital at the TVH site on the built environment of the locality, the likely intensification of use and the loss of agricultural land. Based on this assessment, the Department considers that the proposed hospital would change the existing character of the Kingscliff locality due to the new use in the area. It may have minor impacts on the local tourism industry. However, subject to appropriate mitigation and management measures, the residual impacts would be acceptable and balanced by the substantial public benefits of the future hospital to the population in the region as well as economic benefits to the local businesses within Kingscliff.

6.7 Contamination

The EIS included a preliminary and detailed Site Investigation report (DSI), which identified no significant soil contamination having regard to chemical contaminants, heavy metals, ground or surface water. The DSI identified asbestos fibres and fibrous asbestos on the western side of an existing shed within the site. Based on the above, the DSI recommended the preparation of a Remediation Action Plan (RAP) for the area of asbestos impacted soil, in accordance with State Environmental Planning Policy No. 55 (SEPP 55), as well as appropriate disposal of all remaining asbestos containing material. The Applicant initially advised that the remediation works were classified as Category 2 works under SEPP 55, which did not require consent and would be carried out as preliminary works (not included in the application).

Inadequate assessment of soil contamination, potential for arsenic contamination on the site, presence of a cattle tick dip or a potential dairy farm have been raised as issues in community submissions. EPA's review of the EIS noted reports of elevated arsenic levels in the soil near the farm shed and elevated levels of zinc and copper in the ground water sample. EPA recommended additional assessment of this area to confirm the presence of any cattle dip, the farm dump area at the north-western corner, the existing farm dam and additional ground water sampling throughout the site. Council also considered that the remediation works would require further review, specifically regarding the category of remediation under SEPP 55.

Stage 1 works

In response to the concerns, the RtS amended the scope of the application to include site remediation as a component of Stage 1 works. The DSI addendum, submitted with the RtS, included results of additional soil sampling around the previously existing residence, garage and the farm shed (up to a depth of 0.3m). The additional investigation identified the presence of lead near the previous residence on the site. To further investigate arsenic contamination, two targeted soil sampling locations within the farm dump area have been completed and no elevated concentrations of potential contaminants were recorded. The range of arsenic concentrations detected in samples collected from across the cultivated areas of the site are not indicative of soil contamination. The Applicant has confirmed that sediment samples and water samples have been collected from the dam and no broader groundwater investigation is warranted in this instance.

The RtS includes two RAPs confirming procedures to remediate the site as part of the Stage 1 works. A hazardous materials register for the existing structures on the site (now demolished), and a certificate confirming no asbestos in the farm dump area have also been included. The RtS recommends that a suitably qualified environmental consultant should be on site during removal of vegetation from the farm dump, to ensure that the remaining materials in the dump are inert waste. Further, the RtS also recommends that additional investigation may be required after removal of the on-site slabs, to ascertain the presence of a former cattle dip. A Site Audit Report and Site Audit Statement submitted with the RtS confirm that the site can be made suitable for the proposed use, if remediated and managed in accordance with the RAPs.

The EPA has reviewed the RtS and considers that further data gap investigations would be required prior to the commencement of remediation works, to ascertain the presence of cattle or sheep dip structures or the potential for arsenic or other contaminants at soil depths (rather than surface). Accordingly, the EPA has recommended conditions regarding further assessment on soil contamination, revision of the RAP based on the results of the additional investigation, procedures for unexpected contaminants on the site, a hazardous materials management plan and the engagement of a site auditor during the works.

To ensure that the site is remediated in accordance with the provisions of SEPP 55, prior to the development of the hospital under Stage 2, the Department has included all of the conditions of consent recommended by the EPA including engagement of an NSW EPA accredited site auditor throughout the duration of the additional soil investigation works, remediation works and issue of the Site Audit Statement validating the remediation works

and demonstrating that the site is suitable for the purpose of the proposed land use. The Department notes that the structures on the site have already been demolished under the provisions of the State Environmental Planning Policy Infrastructure 2007 (ISEPP). Notwithstanding, the Department has recommended conditions to enable the demolition of any remaining on ground slabs to allow further soil investigations in relation to the potential presence of a cattle dip and any resulting remediation that may be required following that investigation, so that the site can be made suitable for the purpose of the proposed land use. The Department is satisfied that subject to the implementation of the recommended conditions, the site can be made suitable for the purpose of the proposed land use.

Concept Proposal

The site is proposed to be remediated, prior to the commencement of Stage 1 construction works on the site and development of the hospital. The Department has recommended a condition requiring the Stage 2 application to include a copy of the Site Audit Statement and any other relevant documents to demonstrate that the site is suitable for the purpose of a hospital and complies with SEPP 55.

6.8 Other Issues

6.8.1 Aboriginal Heritage

The EIS is supported by an Aboriginal Cultural Heritage Assessment Report (ACHAR), which includes background archaeological and historical investigation, consultation with the Registered Aboriginal Parties (RAPs) and an archaeological survey undertaken with the participation of the RAPs. The ACHAR has identified no sites of Aboriginal cultural heritage on the surface of the site and concluded that the site has low archaeological potential.

OEH supported the recommendations of the ACHAR. Council considered the ACHAR needs further consideration, as the site is mapped as Predictive Aboriginal Cultural Heritage under the Tweed Shire Council Aboriginal Cultural Heritage Management Plan 2 and is located within 1km of three known and registered sites. In response the Applicant advised that the ACHAR complies with the current Aboriginal cultural heritage guidelines for NSW and no further updates are required.

On the basis of the conclusions of the ACHAR, OEH's comments and the recommendations, the Department is satisfied that the proposal is unlikely to result in significant impacts on Aboriginal heritage. The remaining matters are discussed below.

Stage 1 works

The ACHAR recommended four precautionary principles to be implemented for inductions and stop work procedures in case of unexpected finds on the site, during the Stage 1 works. The Department has recommended a condition regarding an unexpected finds protocol for the Stage 1 construction works.

Concept Proposal

Based on the conclusions of the ACHAR and OEH's comments, the Department concludes that the building footprint is unlikely to result in significant impacts on any sites of Aboriginal cultural heritage. Notwithstanding, it is noted that the future Stage 2 application would be supported by an ACHAR assessing the impacts of the future building works in this regard.

6.8.2 Historical Heritage

The site once formed part of a historically significant sugar plantation established in 1875 and then a major local dairy farm that was subdivided into smaller farms from 1916. The EIS is supported by a Historical Heritage Assessment Report (HAR), which concludes that the proposed development of the hospital would alter the site's historical association as agricultural land for 140 years. There are no existing items on the site that are of heritage

significance. Five dry-stone walls remain on the site, which were potentially built by South Sea Islander farm workers in early 1900s, and have local historical, aesthetic and possibly social significance.

Stage 1 works

Wall 2 (northern boundary) and wall 5 (eastern boundary) would not be impacted by the Stage 1 works. Wall 1 (south-eastern corner) may be partly impacted by the proposed access A. Wall 4 (centrally within the site) would be subject to major impacts due to the construction car park on the eastern side. Wall 3, while located outside the future building footprint, would be partly impacted by the internal service road at the rear of the site. The HAR recommends that removal of the stone walls should be avoided, or alternatively archival recordings be undertaken along with interpretation of the removed walls in the future site plan. The HAR also includes a protocol in case of unexpected archaeological deposits within the rubbish (farm dump) areas at the north - western corner of the site near the coastal wetlands.

Council's submission to the EIS comments that a more technical evaluation of the site is required from the heritage perspective, including the preparation of a Conservation Management Plan (CMP) to protect the walls on the site. Heritage Division considered that the dry-stone walls would reach the threshold of local heritage significance and retention of these walls are preferred.

The Applicant has advised that the site is not heritage listed and therefore a CMP would not be needed. The Heritage Division did not provide any further comments to the RtS.

Based on the assessment in the HAR and the public authorities, the Department has recommended conditions requiring the Applicant to develop procedures for retention of the historically significant walls within the site (where possible), in consultation with Council, and an unexpected finds protocol for archaeological deposits. If retention is not possible, archival recordings of the walls should be completed prior to demolition works.

Concept Proposal

The HAR recognises that the proposed use of the site as a hospital would alter the social history of the site. Additionally, the proposed location of access A and the public car park to the east of the building footprint would impact on walls 1 and 4. Part of wall 3 would also be impacted by the internal service road at the rear of the site. While majority of the impacts would occur during the Stage 1 construction works, the HAR includes a range of mitigation measures applicable to the Stage 2 application. These include interpretation of the demolished sections of walls 3, reconstruction of the retained section of wall 1 and possible retention of wall 4 and its integration with the future car park design.

While acknowledging the historic use of the site, the Department notes that the site is not listed as a heritage item of local or state significance and is zoned SP2, which permits the proposed land use. The Department supports the Applicant's approach and has recommended conditions of consent requiring the Stage 2 application to include details of the HAR recommendations regarding interpretation of the removed walls on the site and the farmland on the site.

6.8.3 Dust control and air quality impacts

Stage 1 works

The SRtS states that emissions during Stage 1 works would typically relate to dust and particulates originating from vegetation clearing, general earthworks, crushing of materials / rocks and gaseous emissions from vehicles and plants. Additionally, dust deposition can result in adverse impacts on the adjoining agricultural uses and the threatened flora and fauna on the site.

Concerns regarding dust generation and the resultant impacts on the locality have been raised in many public submissions to the EIS. EPA commented on the need for effective dust control to prevent dust emission from the

site. Council recommended that an Air Quality Management Plan (AQMP) should be prepared for Stage 1 assessing the impact of localised earthworks, crushing and blasting.

In response to these submissions, the Applicant committed to sealing approximately 4ha of haul roads and car parking areas to reduce dust emission through the duration of construction works. Additional management and mitigation measures, specific to the site include: preparation of an AQMP; exclusion of rock blasting; location of rock crushers away from the southern and eastern boundaries; dust suppression methods; reuse of rocks (where possible); stop work procedures in adverse weather conditions; revegetation of areas as soon as possible; water sprays on stockpiles; localised dust screens; and dust monitoring techniques.

The Department has reviewed the EIS and RtS and is satisfied that the application adequately identifies the broad impacts of the dust generation during Stage 1. The Department is also satisfied that the residual impacts can be addressed through appropriate conditions of consent, including a requirement for the preparation of an AQMP with air quality targets and monitoring techniques as well as further assessment of the best location for the crusher with the enclosure to avoid and/or reduce potential amenity impacts.

Concept Proposal

The dust generation and management measures during construction of the future hospital would be considered in the Stage 2 application. During the operation of the hospital, spray drift from the adjoining agricultural uses are identified in the EIS, as the primary source of air quality impact. (discussed in **Section 6.1**).

6.8.4 Acid sulphate soils

The site is mapped as containing acid sulphate soils (ASS) in the TLEP 2014. Acid sulfate soils are natural sediments that contain iron sulphides. When disturbed or exposed to air these soils can release acid, damaging built structures and harming or killing animals and plants. The Acid Sulfate Soil Manual (NSW, August 1998) includes a map identifying the probable location of acid sulfate soils in five classes (classes 1 – 5), class 5 being the area with lowest risk of occurrence of ASS. The developed area of the site would be sited in class 5 ASS. The coastal wetlands area with mapped ASS classes 2 and 3 with higher risks of occurrence of this soil. Clause 7.1(2) of the TLEP 2014 specifies that additional assessment is required for works within the class 5 ASS, when the works are within 500m of adjacent class 1 – 4 that are below the level of +5m AHD or works that are likely to lower the water table below +1m AHD on adjacent class 1 – 4 land.

The EIS and the revised BDAR conclude that the proposed hospital and associated facilities would be located in areas of no risk, as identified by the Acid Sulfate Risk Mapping (OEH publication) and therefore no additional assessment in this regard is necessary. OEH, Council and EPA have no raised no concerns with regard to the Applicant's assessment of the impacts on ASS.

The Department's assessment concludes that no works are proposed within the land mapped class 2 and 3 ASS, no works are proposed below the level of +5m AHD or would lower the water table of any adjacent coastal wetlands area below +1m AHD. Consequently, no further assessment of ASS is required, pursuant to clause 7.1 of TLEP 2014.

6.8.5 Airspace protection / Helicopter operation (Concept Proposal)

The Concept Proposal involves a rooftop HLS over the building envelope of the future hospital. CASA reviewed the EIS and confirmed that proposed building height will not infringe the Obstacle Limitation Surface (OLS) for GCA.

The design and operation of the HLS would be detailed in the Stage 2 application. Notwithstanding, the Concept Proposal is supported by an Aviation Report, which concludes that the proposed flight paths of the HLS would be predominantly over farmland / forests. The HLS is sited far away from the aerodrome of GCA and would not compromise its prescribed airspace.

GCA Authority provided several comments and requested that further consultation in the future regarding the HLS. Community submissions to the EIS have raised concerns regarding the impacts of the helicopter operations on the amenity of the residents in Kingscliff.

In response to the above concerns, the SRtS acknowledged that the flight path in the northern direction would be over residential areas. But the path would avoid built up areas where possible. As such, the Applicant anticipates a maximum of six movements per week with an estimated flight time of two hours per annum for the site, based on the use being for pre-planned patient transfers between hospitals.

Based on the above, the Department is satisfied that the hospital would not impede on any existing flight paths in the region. The proposed HLS and the restricted operations would minimise impacts on the nearby residents. Conditions of consent recommend that the design of the helipad complies with the Civil Aviation Safety Authority Civil Aviation Advisory Publication CAAP 92-2(2) Guidelines.

6.8.6 Waste Management

Stage 1 works

The EIS includes a preliminary Waste Management Plan (WMP) for Stage 1 with details of excavated materials to be transported off site. Following the comments from public authorities on the EIS, the Applicant has advised that the additional spoil would be stockpiled on the site and the sediment laden waste water treated in basins prior to discharge into the wetlands. The Department is satisfied that the proposed Stage 1 works would incorporate appropriate waste management measures subject to the implementation of conditions of consent requiring the preparation of a Construction Waste Management Plan for Stage 1.

Concept Proposal

The EIS includes a preliminary WMP, considering the operational parameters of the future hospital. The Department considers that operational waste management including clinical, trade and sanitary waste or matters in relation to radiation would be assessed in detail in the Stage 2 application.

6.8.7 Utilities and services

Stage 1 works

The Stage 1 works involve the augmentation and connection of permanent services for the new facility. These would include site sewerage connection, site trunk mains reticulation, electrical and communications infrastructure (including a temporary construction site kiosk substation), external lighting and power distribution, and pit and pipe systems to facilitate future permanent supplies.

The Application is supported by an Infrastructure Management Plan. Council has reviewed the proposal in this regard and considers that the proposed development would be able to connect to Council's existing water supply / sewerage infrastructure without the need for any upgrades. However, Council have requested for financial contributions (headwork charges) from the Applicant prior to connecting to Council's infrastructure, considering the scale of this development and the pressure on Council's infrastructure in the long term. Council also required that the detailed design of the development must ensure that that it can be connected to the 300mm water trunk main for water supply services and 300mm diameter sewer rising main.

The Applicant has advised that an agreed approach with Council regarding the payment of headwork charges has not been reached yet. The Department notes Council's request for payment of headwork charges and that there is no specific requirement for public authorities to pay when connecting to existing local infrastructure assets. Notwithstanding, the Department considers that the proposed development would have impacts on Council's infrastructure in the long term. Consequently, the Department has recommended a condition requiring

the Applicant to reach an agreement (including financial contributions if any) with Council regarding water and sewer connections prior to commencement of these works in Stage 1.

The utilities plan for the Stage 1 works note that two Liquefied Petroleum Gas (LPG) tanks would be installed as part of Stage 2 works on the site. A condition of consent is recommended to ensure that the LPG tanks are not installed as part of the Stage 1 works, as additional hazard assessment would be needed in Stage 2 to ascertain the suitability of the location of these tanks.

Concept Proposal

The EIS states LPG would be stored on-site within gas tanks with related deliveries in conjunction with the operation of the hospital, as no gas services are available within the site. Adequate and compliant potable water supply is available for connection to Tweed Shire Council water main system.

The future hospital would have essential supplies that require a second supply from diesel generators on the site, that require underground petroleum storage systems (UPSS). The design and location of these tanks would be detailed in the Stage 2 application.

An electrical substation is proposed at the south-western corner near the access A to Cudgen Road.

As noted above, the majority of the utility connections in relation to the future hospital are proposed to occur in Stage 1. No public authorities have raised specific concerns regarding utility provisions on the site, apart from Council's concerns regarding the payment of headwork charges prior to connecting to Council's assets. The Department has recommended conditions as part of the Stage 1 works, to address Council's concerns. Conditions of consent also require the Applicant to provide evidence of the agreed approach with Council and the details of connection to Council's and other relevant utility providers' assets as part of the Stage 2 application.

6.8.8 Groundwater

Stage 1 works

The EIS was supported by a Geotechnical Assessment Report, which concluded that groundwater on the site was encountered at depths ranging between 11.2m to 14.4m. Therefore, groundwater and seepages are likely to be encountered in piles below 11m. It included specific recommendations to control seepage and lining of the piles.

Council's assessment of the EIS concluded that the site is identified as having high groundwater vulnerability. A Dewatering Management Plan should be prepared by a suitably qualified consultant in case of groundwater being intercepted and / or where the discharge of any waters from sediment control basins is proposed. Dewatering was also raised as a concern by DoI in its review of the EIS.

In response, the RtS included additional geotechnical assessment, which stated that during additional borehole drillings, groundwater was encountered at depths of 6.5m – 14.9m (water table approximately at RL 11). On this basis, the report concluded that groundwater is unlikely to be encountered above RL 14. The design does not propose any excavations below RL 14 (except for piling) and therefore, would not lower the water table or dewatering.

During piling, it is proposed to use a continuous flying auger (CFA). This method of pile construction manages any incursions of the water table wholly within the pile bore without taking water from the aquifer. If, in the detailed design of the Stage 1 Early Works, it is determined that a groundwater licence is required, an application to the relevant authority would be made and obtained.

Based on the above, the Department has recommended a condition requiring that unless appropriate licences are obtained in relation to dewatering, the site should not be dewatered during the piling works.

6.9 Summary of Department's consideration of submissions

A summary of the Department's consideration of the issues raised in submissions is provided at **Table 11**.

Table 11 Department's consideration of key issues raised in submissions

Issue Raised	Department's Consideration
Site selection and need for the project	- The Department is satisfied that Applicant has undertaken a comprehensive site selection process to choose the site for the development. Alternate sites including Kings Forest were assessed for this purpose and the details are published on the Applicant's website. The site selection process and any comparisons of the suitability of other sites are outside the scope of assessment under the EP&A Act. - The Applicant has undertaken a comprehensive options analysis to demonstrate the need for a new hospital and the suitability of the greenfield site, in lieu of the refurbishment of the existing Tweed Heads Hospital. The Department agrees with the Applicant's conclusions in this regard.
Loss of agricultural land, and farming jobs leading to adverse impacts on food security	- The Department has undertaken a detailed assessment of the agricultural impacts in Section 6.1 and considers that the loss of SSF due to the siting of the proposed development would not fragment the remaining arable land in Cudgen, or result in substantial impact on food security in the region. - The Department has recommended a condition requiring the submission of an Agricultural Offset Plan with measures to offset the loss of SSF in the region.
Inappropriate assessment of agricultural potential of the land	The Applicant has provided a comprehensive assessment and amended information in relation to sweet potato plantation on the site. The Department agrees within the quantitative assessment of the cropping duration / financial loss based on comments from DoI. The proposed mitigation measures would offset the loss of the agricultural potential of the land.
Risk of locating hospital adjoining agricultural uses	- The Department has undertaken a careful assessment of all the land use risks associated with locating the hospital adjoining the agricultural lands in Section 6.1.4 and is satisfied that a 300m wide buffer between the hospital and the agricultural uses is not required. - The Department notes the community concerns regarding the location of the electrical substation within the vegetative buffer on the western side and considers that the substation would have not significant impact on the vegetative buffer on the site boundary or the ability to increase its width in the future, if needed. - The Department is satisfied that the vegetative buffers on the site boundaries would screen the agricultural spray drift from adjoining sites. The Department has recommended conditions requiring further consultation with adjoining farmers ensuring that any intensification of activities is identified, and farmer's rights are not compromised.
Adverse impacts of rezoning the site including intensification of surrounding land uses	The proposal involves a permissible development within land zoned SP2. The Department notes the concerns in the public submissions regarding refusal of previous rezoning applications surrounding the site and the recent sale of adjacent land, which could lead to rezoning of surrounding land. No applications have been received by the Department on Council for intensification of use of the surrounding land.

	• The UD Report supporting the EIS includes concept plans to demonstrate that the site can accommodate future expansion opportunities without impacting on the adjacent agricultural land to the west. • The Department recognises that there may be forecast demand in the future for complimentary and supporting uses likely to be associated with the proposed health services facility, leading to intensification of use of land within the locality and the wider region. The Department notes that the future growth of the locality and the region has been accounted for in the draft Kingscliff Locality Plan (KLP) and the NCRP. The draft KLP provides for appropriately zoned land within this surrounding area to support the future growth needs including a “Business and Knowledge precinct” to the north of the site. Housing opportunities are accommodated in other areas in the Kingscliff locality.
Inconsistencies with the NCRP 2036	• The Department has undertaken a comprehensive assessment of the proposal’s compliance with the Directions in the NCRP 2036 in Section 3.2. The assessment establishes that the siting of a critical public infrastructure on SSF, in the absence of any other suitable sites in the region, is not inconsistent with the NCRP 2036.
Social and economic impacts	• The Department considers that the relocation of health facilities from the existing hospital to the TVH site is a matter for the Applicant to decide based on the need for health services in the region. However, the Department supports the Applicant’s proposal to mitigate the identified impacts of the proposed relocation by: developing a transport plan for the elderly and vulnerable community; including alternate uses within the vacant TTH building; and co locating the excluded facilities within the proposed “HealthOne” facility. • The Department is satisfied that, given the distance between the two sites, loss of direct jobs due to the relocation is not anticipated. Further, there are health related jobs in the region that are not dependent on the siting of the hospital. • The Department notes that impacts on the local businesses within the Tweed Heads town centre due to the relocation of the hospital from the locality. The Department is satisfied that proposed alternate uses of the vacant building would assist in reducing the impacts on the businesses or supply chains. • Recommended conditions require that the Stage 2 application includes details of the community transport plan in consultation with TFNSW (Section 6.6.2). • The submissions regarding the distance between the TVH site and the police station or ambulance station as well as drop in housing value within the Tweed Heads town centre, are not matters for consideration under the EP&A Act. • Social impacts of the Stage 1 works are generally associated with the impacts of noise, dust and traffic on surrounding community. The Department considers that the social impacts of the proposal are acceptable based on the proposed mitigation measures and recommended condition, including the establishment of a Community Communication Strategy (Section 6.6.1). • The Department recognises that the change in the future character of Kingscliff would be influenced by the hospital as well as the anticipated population increase considered in the draft KLP and the NCRP. The Department agrees with the Applicant’s assessment of the social impacts in Kingscliff in relation to traffic, change to established built form, resident migration in the locality, loss of agricultural jobs, adverse impacts on tourism and considers that the social and economic benefits of the hospital would offset the negative impacts. The traffic improvements would positively benefit to the community and the local tourism industry (Section 6.6.3). • The future parking fee structure at the hospital and its impacts would be assessed in detail in Stage 2. The Applicant has committed to establish a Transport Access and Parking working group to investigate alternate transport strategies and impacts of the parking fees.

	The Department anticipates that the operational management plan for the future hospital would incorporate standard procedures regarding hospital related criminal and antisocial activities. These matters can be assessed in Stage 2.
Access to the site during flood events	- The Department's assessment concludes that connection to the site can be maintained during 1% and 5% AEP events. In case of obstruction to the access routes, alternate access to the Robina Hospital would be available. - The hospital is proposed above the PMF for the site and proposed drainage infrastructure in Stage 2 would ensure that the flooding risk is not increased (Section 6.1).
Built Form and urban design	- The site is zoned SP2 with no development standards for floor space, height or lot size. While the Department notes the community concerns regarding lack of development standards on the site, this matter is not within the scope of this application. - The Department has undertaken a comprehensive assessment of the built form and urban design principles in Section 6 and is satisfied that the building design envelope for the hospital and the health hub are appropriate to accommodate the functions of a critical infrastructure needed in the region (Section 6.2). - The Department also notes that the proposed design of the development is being developed taking into consideration comments from the State Design Review Panel (SDRP) and the GANSW. The Department anticipates that through this consultation process the detailed design of the future hospital would be developed to ensure that the bulk and scale is reduced where possible.
Visual impacts	- The EIS and RtS are supported by a detailed visual impact assessment report. The Department's assessment of the visual impacts concludes that although there would be additional visual impacts of the future hospital on sensitive receivers, the identified distant views would be maintained for majority of the affected receivers. - The Department is satisfied that the visual impact due to the building envelope is reasonable in the overall context of the benefits of the hospital to the broader community and that further design development would assist in reducing any negative visual impact.
Crime prevention	The Stage 2 application would consider crime prevention principles in the site plan.
Inadequate APZ provisions and buffer to proximity area, Insufficient developable area of the site	- RFS have advised that the proposed APZs are appropriate for the site. In discussion with RFS and OEH, the Department's assessment concludes that the APZs would be located in generally cleared areas of the site and would not result in further loss of significant vegetation or compromise the integrity of the coastal wetlands (Section 6.3.6). - Sections of the building footprint, sediment basins, internal roads and future bio-retention basins would be located within the mapped proximity area, which is not inconsistent with the Coastal Management SEPP subject to appropriate water quality treatment strategies and retention of significant vegetation. The Department's assessment in this regard is satisfactory (Section 6.3.6 and 6.3.7). - The Department is satisfied that the site has sufficient area to accommodate the building envelope for the hospital, the support services and the roads, notwithstanding the buffers to the coastal wetlands, flood prone and bushfire prone land as well as adjoining agricultural land.
Adverse impacts on threatened flora and fauna	The RtS includes a comprehensive BDAR assessing the direct, indirect and prescribed impacts on the existing vegetation and threatened species. The revised BDAR includes details of credits to offset the direct impacts. The Department agrees with the Applicant's assessment subject to the implementation of a BMP, VMP and HMP (Section 6.3).

Referral under the EPBC Act	- The RtS includes a report assessing the impacts under the EPBC Act including the impacts on the Mitchell's rainforest snail and koala habitat. The Applicant's assessment concludes that the proposed impacts do not exceed the threshold in the MNES Significant Impact Guideline and referrals to the Commonwealth would not be needed. - The Department considers that the referral process under the EPBC Act to the Commonwealth is matter for the Applicant not consider. The determination of the SSD application is not dependent on this referral process (Section 4.4.8).
Impacts of drainage works	- The Department is satisfied that in principle, the proposed stormwater infrastructure for the future hospital would be able to achieve Council's water quality targets, and the would not impact on the coastal wetlands in terms of peak flows, subject to conditions. Conditions of consent require further stormwater studies and plans be prepared and implemented in Stage 2, to ensure that the post-development flows mimic the pre-development flows during peak and dry periods. The ecological impacts of the increase in stormwater volumes (if any) on the coastal wetlands would be assessed in detail in Stage 2 (Section 6.3.7). - The Department notes the community concerns that additional consent is require for the use of the sediment basins for the purpose of the development. The existing sediment basins do not form part of this consent, but their use for water treatment have been included in the application.
Traffic impacts and site access arrangements	- The TIA identified the broad array of potential traffic impacts due to the operation of the future hospital. To mitigate the adverse impacts due to the additional traffic volume to be generated by the hospital, the Applicant proposes upgrades to the Tweed Coast Road / Cudgen Road intersection and signalisation of the Cudgen Road entry in Stage 2. - The TIA has also established that the future performance of the Turnock Street / Cudgen Road roundabout and any associated queuing would not impact on the entrance to the Kingscliff TAFE. - The Department has recommended conditions requiring further traffic studies to be undertaken in Stage 2 considering impacts on agricultural vehicles, preparation and implementation of the traffic intersection upgrades, Green Travel Plans and provisions for continuous pedestrian connections (Section 6.4). - The Department has recommended conditions requiring the Applicant to consult with Council prior to finalising the design of the access A and D from Cudgen Road in Stage 1. - The Department is satisfied that traffic impacts related to the Stage 1 works, including impacts on the local road network, can be suitably managed by the proposed mitigation measures and the recommended conditions of consent (Section 6.4.6).
Noise impacts and dust impacts during Stage 1 construction works	- The Applicant has included a comprehensive list of management and mitigation measures to reduce adverse noise impacts during construction activities in Stage 1. The Department is satisfied that the mitigation measures are acceptable. - The Department is satisfied that the residual impacts can be managed via recommended conditions of consent restricting rock blasting, requiring intra-day respite periods, use of less noise intrusive equipment, restricting demolition hours, use of alarms and careful location of the rock crusher (Section 6.5.1). - The Department is satisfied that the dust impacts related to the Stage 1 works can be adequately managed by the proposed mitigation measures, such as temporary dust screening, suitable location of the rock crusher, unattended dust monitors at key surrounding sensitive receptors, and recommended conditions (Section 6.8.3).

Operational noise impacts	The noise impacts due to operation of the hospital would relate to traffic, plans and equipment and helicopter operations. The Department has recommended conditions requiring a comprehensive noise assessment to be undertaken in Stage 2 including helicopter operations (Section 6.5.2).
Heritage Impacts	- The EIS and RtS include detailed assessment of Aboriginal cultural heritage and historical heritage on the site. The Department considers that the heritage values (both Aboriginal and historical heritage) of the site have been adequately addressed. - The impacts of the proposal on the existing dry sandstone walls can be mitigated via conditions of consent requiring the Applicant to develop procedures to retain these walls in Stage 1 and / or interpret any demolished walls in the future design in Stage 2.
Commencement of works prior to granting consent	- Preliminary works have been undertaken by the Applicant prior to Stage 1 works, including construction of sediment basins, establishment of a site compound and fence, demolition works and geotechnical investigation. The Applicant has advised the Department that these works do not require development consent under the SSD application. - Council have made representations to the Applicant in relation to these works. The Department notes that some of the works, initially included as preliminary works, were later included in the scope of the SSD application. These include the intersection upgrade works, site remediation works and site access.
Soil Contamination	The RtS includes a detailed Soil Investigation Report, which concludes the presence of asbestos contamination in certain sections of the soil. A RAP would be implemented prior to the commencement of Stage 1 works to remediate the site. The Department has recommended conditions requiring further investigations regarding heavy metals and the potential presence of a cattle dip on the site. The RAP would require updating if additional soil contamination is identified.
Environmental Sustainability Impacts	- The Department is satisfied that the environmental sustainability of the proposal can be addressed by the proposed mitigation measures and recommended conditions requiring the incorporation of sustainability strategies in the Stage 2 application. - The proposed development has considered the principles of ESD in the context of the EP&A Regulation including intergenerational equity. The loss of SSF on the urban fringe is deemed acceptable on the basis of the proposed offsets.
Other Environmental Impacts	The Department is satisfied that other environmental impacts related to the Stage 1 works, including erosion and sediment control, and waste management can be adequately managed by the proposed mitigation measures, and recommended conditions.
Infrastructure connections	The Department has recommended conditions requiring the Applicant to consult with Council for an agreed approach regarding sewer and water connection with any related financial contributions. As such, approval from the relevant utility provider would be required prior to installation of services on the site.
Insufficient Community Consultation	- The Applicant has provided a community consultation report highlighting consultation methods undertaken prior to the lodgement of the SSD. The Department has undertaken direct consultation with the community and public authorities as outlined in Section 5. - The community consultation during the site selection process is outside the scope of assessment under the EP&A Act.
Timeframe of Determination and	The assessment of the application is being undertaken in accordance with the statutory timeframes applicable to SSD applications.

submissions handling	The Department notes the concerns regarding administrative procedures in relation to community submissions. The matter has been referred to the relevant branch within the Department for review.
The proposed yield and ability to accommodate all uses	- The Department notes the community concerns regard the adequacy of the building envelope to accommodate the yield of 900 beds and the other proposed facilities. However, the application does not seek approval of the maximum yield or the proposed facilities under the Concept Proposal. This matter would be assessed in detail in Stage 2. The Department has assessed the SSD application on the basis of 430 beds, 1050 staff and an a maximum GFA of 65,000m² on the site for the two buildings. - The Department has recommended conditions, which require the Stage 2 application to demonstrate that the floor area is restricted to above quantum and that satisfactory justification be provided, in case of any proposed increase in the yield.
Affordable accommodation on the site, relationship with other social services	- The proposal does not seek approval for affordable accommodation for carer, visitors and patient families. Therefore, no further assessment in this regard is necessary. The Applicant suggests that there is sufficient space on the site to accommodate such housing, which would depend on the need and be assessed under future development applications. - The relationship with other social service providers and accommodation of social services within the site would be assessed in detail in Stage 2.
Determining Authority	The application is lodged by a public authority. Pursuant to the provisions of the EP&A Act, the Minister for Planning is the consent authority.
Inadequate documentation	The Applicant's EIS, RtS and SRtS include a comprehensive documentation of all perceived environmental impacts of the proposal
Light spill	The Stage 2 application would need to include a detailed assessment of the proposed lighting strategy for the site to ensure any obtrusive impacts of external lighting on the surrounding users are mitigated.
Aviation and Helicopter operations	- The Application has confirmed that the proposed hospital envelope would be located outside the ANEF 20 contour and would not be impacted by the GCA flight paths, aircraft noise or the Obstacle Limitation Surface for the GCA. - The Applicant has confirmed that anticipated helicopter operations would be infrequent (less than 10 a month) and comprise pre-planned patient transfers. The siting of the HLS on the rooftop and flight paths above forests and farmlands where possible, would reduce the associated impacts on the amenity of the surrounding residents. The Department considers that this can be assessed in detail in Stage 2.
Approval of piling works in Stage 1	The approval of the piling works in Stage 1 are based on the Department's assessment of the building footprint. Notwithstanding, the detailed building design in Stage 2 would be informed by the terms of the Concept Proposal and assessed in further detail.
Groundwater and dewatering	The Applicant has advised that dewatering would be not be needed as the water table is unlikely to be encountered, except for deep piles. Notwithstanding, the Department has recommended a condition requiring the Applicant to obtain relevant licenses, if dewatering be required during piling works in Stage 1.
CIV not appropriate	The Applicant has submitted a report signed by a Quantity Surveyor certifying the proposed CIV for the site. The Department is satisfied that the submitted CIV correctly reflects the proposed works.

Combining the health services for Tweed and Byron

- The EIS states that the proposed TVH would serve the population of Tweed Shire and Byron Shire, but did not indicate that services to both these regions would be combined.
- The Department considers that this matter is not within the scope of this application.



7. Evaluation

The proposed SSD application seeks approval for a Concept Proposal and Stage 1 Works for the New Tweed Valley Hospital. The Department has reviewed the EIS, RtS, SRtS and assessed the merits of the proposal, taking into consideration advice from the public authorities, including Council. Issues raised in public submissions have been considered and all environmental issues associated with the proposal have been thoroughly addressed.

The Department considers that the project is in the public interest, and that the site is suitable for the proposed development, given the significant social and economic benefits associated with the delivery of the future hospital. Recommended conditions of approval and the implementation of measures detailed in the Applicant's EIS, RtS and SRtS would minimise and mitigate the residual environmental and social impacts of the project. Consequently, the Department considers the development should be approved, subject to conditions.

The Department's assessment of the application concludes that:

- the Applicant has considered the impacts of siting the development on State significant farmland and in proximity to the agricultural uses. The proposed offset measures have been considered and would be implemented to ensure that any negative impacts due to the loss of arable land are mitigated.
- the proposed built form would not be compatible with the existing rural character of the locality; however, the Applicant has taken reasonable steps to reduce the impact of the built form on the surrounding locality with further reduction in the bulk and scale during the Stage 2 assessment encouraged.
- biodiversity impacts would be appropriately managed and offset, subject to retention of the vegetation along the northern boundary, retiring the generated credits prior to commencement of the Stage 1 works, incorporating vegetative buffers along the southern / western boundaries to provide connectivity and addressing visual amenity to surrounding areas and the future users of the site.
- an appropriate level of roadworks planning is proposed by the Applicant in consultation with RMS and Council to ensure that necessary road improvements are delivered to facilitate the efficient operation of the future hospital. Further assessment and confirmation of the road upgrades would be needed in Stage 2 in consultation with RMS and Council to ensure all cumulative impacts are addressed.
- the Stage 1 construction noise impacts would exceed the highly affected noise level at identified receivers but can be managed appropriately subject to implementation of mitigation measures, in consultation with impacted sensitive receivers and undertaking the works during day time periods.
- the site would be suitable for the purpose of a hospital subject to additional soil investigation and remediation works being undertaken prior to the commencement of the Stage 1 construction works.

The project is consistent with key Government strategic objectives for the state and the region, including the North Coast Regional Plan 2036, NSW State Priorities and the State Infrastructure Strategy 2018-2038. The proposal is in the public interest as the future development would provide public benefits, including:

- delivering modern health facilities that would support and deliver current standards for health care
- providing additional health facilities to support the growing and ageing population in the region and associated increasing demand for public health services
- opportunities for further expansion of health facilities without the need to further land acquisition
- consolidating and providing further investment in public infrastructure in a strategic regional centre
- delivery of approximately 2700 new construction jobs and 208 additional operational jobs.



8. Recommendation

It is recommended that the Minister for Planning:

- **considers** the findings and recommendations;
- **accepts and adopts** all of the findings and recommendations in this report as the reasons for making the decision to grant consent to the application;
- **agrees** with the key reasons for approval listed in the notice of decision (see **Appendix D**);
- **grants consent** for the application in respect of SSD 9575; and
- **signs** the attached development consent and recommended condition of consent (see **Appendix E**).

Aditi Coomar

Principal Planner, Social and Other Infrastructure Assessments

Recommended by:

Karen Harragon

Director
Social and Other Infrastructure Assessments

Recommended by:

David Gainsford

Executive Director
Priority Projects Assessments



9. Determination

The recommendation is: **Adopted / Not adopted** by:

The Hon Robert Stokes MP

Minister for Planning and Public Spaces



Appendices

Appendix A - List of Documents

The following supporting documents and supporting information to this assessment report can be found on the Department of Planning and Environment's website as follows.

1. Environmental Impact Statement

<https://www.planningportal.nsw.gov.au/major-projects/project/10756>

2. Submissions

<https://www.planningportal.nsw.gov.au/major-projects/project/10756>

3. Applicant's Response to Submissions

<https://www.planningportal.nsw.gov.au/major-projects/project/10756>

4. Applicant's Response to Submissions Supplementary information

<https://www.planningportal.nsw.gov.au/major-projects/project/10756>

5. Additional submissions from Public Authorities and community received after close of exhibition

Electronic copies of all information provided under separate cover (in a USB)

Appendix B - Statutory Considerations

ENVIRONMENTAL PLANNING INSTRUMENTS (EPIs)

To satisfy the requirements of section 4.15(a)(i) of the EP&A Act, this report includes references to the provisions of the EPIs that govern the carrying out of the project and have been taken into consideration in the Department's environmental assessment.

Controls considered as part of the assessment of the proposal are:

- State Environmental Planning Policy (State & Regional Development) 2011
- State Environmental Planning Policy (Infrastructure) 2007
- State Environmental Planning Policy No.33 – Hazardous and Offensive Development
- State Environmental Planning Policy No.55 – Remediation of Land
- State Environmental Planning Policy (Coastal Management) 2018
- State Environmental Planning Policy No. 44 – Koala Habitat
- Draft State Environmental Planning Policy (Remediation of Land)
- Draft State Environmental Planning Policy (Environment)
- Tweed Local Environmental Plan 2014
- Tweed Local Environmental Plan 2000.

COMPLIANCE WITH CONTROLS

State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP)

The aims of this SEPP are to identify State significant development and State significant infrastructure and confer the necessary functions to joint regional planning panels to determine development applications.

Table B1 | SRD SEPP compliance table

Relevant Sections	Consideration and Comments	Complies
3 Aims of Policy The aims of this Policy are as follows: (a) to identify development that is State significant development	The proposed development is identified as SSD.	Yes
8 Declaration of State significant development: section 4.36 (1) Development is declared to be State significant development for the purposes of the Act if: (a) the development on the land concerned is, by the operation of an environmental planning instrument, not permissible without development consent under Part 4 of the Act, and (b) the development is specified in Schedule 1 or 2.	The proposed development is permissible under the TLEP 2014. The development is a type specified in Schedule 1.	Yes
Schedule 1 State significant development – general (Clause 14) 14 Hospitals, medical centres and health research facilities	The proposed development comprises development for the purpose of a hospital and has a CIV in excess of \$30 million.	Yes

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

- (a) hospitals,
- (b) medical centres,

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

State Environmental Planning Policy (Infrastructure) 2007 (ISEPP)

The Infrastructure SEPP aims to facilitate the effective delivery of infrastructure across the State by improving regulatory certainty and efficiency, identifying matters to be considered in the assessment of development adjacent to particular types of infrastructure development, and providing for consultation with relevant public authorities about certain development during the assessment process.

The use is categorised as 'health services facilities'. The development is sited within the southern section of the site, which is zoned SP2 Infrastructure (Health Services), defined as a 'prescribed zone' in clause 56 of the ISEPP. The use of the site as 'health services facilities' is therefore permissible with consent under the ISEPP.

Pursuant to clause 104 of the ISEPP, the development is categorised as a traffic generating development whereby referral to RMS would be necessary. Consultation with RMS has been carried out and details provided in **Sections 5** and **6**. The Department has included suitable conditions in the recommended conditions of consent following its consultation with the public authorities (**Appendix E**).

The Department notes that preliminary works have been undertaken on the site by the Applicant pursuant to the provisions of the ISEPP. However, these works are not included within the scope of this application and therefore no further assessment in this regard is necessary.

State Environmental Planning Policy No. 33 – Hazardous and Offensive Development (SEPP 33)

SEPP 33 provides clear definitions of hazardous and offensive industries and aims to facilitate development defined as such and to ensure that in determining developments of this nature, appropriate measures are employed to reduce the impact of the development. SEPP 33 requires an assessment of hazardous materials, involving a screening method based on the quantities of dangerous goods on a site, to assist in determining if a development is likely to be a potentially hazardous industry.

The Concept Proposal and Stage 1 early works do not propose any new hazardous activities. The Stage 2 application would include the provision of any potentially hazardous substances and dangerous goods and assess the requirements of SEPP 33.

State Environmental Planning Policy No. 55 - Remediation of Land (SEPP 55)

SEPP 55 aims to ensure that potential contamination issues are considered in the determination of a development application.

The RtS includes a Detailed Soil Investigation Report, which identifies asbestos contamination on the site. A RAP has been provided in accordance with the SEPP 55 guidelines, with remediation measures that are required to be completed prior to the commencement of the Stage 1 construction works within the relevant parts of the site that are identified as requiring remediation. The RAP states that the completion of the remediation works are required to ensure that the site can be made suitable for the purpose of use as a hospital.

The Department's and EPA's assessment conclude that additional soil investigation would be required to determine the presence of a potential cattle dip on the site and based on this result, the RAP may require updating. However, subject to appropriate remediation, the site would be suitable for the purpose of a hospital, having regard to SEPP 55.

The Department has recommended suitable conditions to facilitate additional investigations and remediation works on the site as well as engagement of a Site Auditor through the duration of the remediation works. Conditions of consent also require that a Site Audit Statement be submitted after completion of the remediation works, which would occur prior to the commencement of the Stage 1 construction works on those parts of the site that are identified as requiring remediation. The Site Audit Statement is required to validate that the site is suitable for the proposed use.

A copy of the Site Audit Statement would also have to be submitted as part of the Stage 2 application.

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 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, and mapping the four coastal management areas (the coastal wetlands and littoral rainforests area, the coastal vulnerability area, the coastal environment area and the coastal use area) that comprise the NSW coastal zone for the purpose of the definitions in the *Coastal Management Act 2016*.

The northern part of the site is mapped as 'coastal wetlands' and is subject to an approximately 50m wide 'proximity area to coastal wetlands' to the south of the wetlands. The proposed development would not disturb the coastal wetlands but proposes works within the proximity area. The Department has assessed the impacts of the following components of the development on the coastal wetland in **Section 6.3**: sediment basins in the proximity area, APZ locations within the proximity area, impacts of drainage works on the coastal wetlands.

The Department is satisfied that the future development would be consistent with clause 11 of the Coastal Management SEPP, subject to the implementation of the management and mitigation measures, and recommended conditions of consent.

Pursuant to clause 15, the Department is satisfied that the proposed development would not result in increased risk of coastal hazards. Pursuant to clause 16, no certified coastal management programmes apply to the land.

State Environmental Planning Policy No. 44 – Koala Habitat (SEP 44)

This Policy aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline.

The BDAR identifies the vegetation in 'Zone 6' on the eastern boundary to be a potential Koala Habitat pursuant to clause 7 of SEPP 44. The Applicant has undertaken scat surveys and concluded that the habitat is suitable for koalas (not a core koala habitat pursuant to clause 8). OEH, in its comments indicated that koalas have been detected in the near vicinity of the site. Council and OEH have recommended that the vegetation in Zone 6 be retained and a Habitat Management Plan (HMP) be developed for Stage 1 works and long-term operation of the future hospital to ensure retention of the habitats for koalas.

The proposed development would not impact on the vegetation in Zone 6. Additional conditions of consent require the preparation and implementation of HMPs in Stage 1 and then as part of the future hospital. Subject to the above, the application is consistent with the provisions of SEPP 44.

Draft State Environmental Planning Policy (Remediation of Land)

The Draft Remediation SEPP will retain the overarching objective of SEPP 55 promoting the remediation of contaminated land to reduce the risk of potential harm to human health or the environment.

Additionally, the provisions of the Draft Remediation SEPP will require all remediation work that is to be carried out without development consent, to be reviewed and certified by a certified contaminated land consultant, categorise remediation work based on the scale, risk and complexity of the work and require environmental management plans relating to post-remediation management of sites or ongoing operation, maintenance and management of on-site remediation measures (such as a containment cell) to be provided to Council.

The Department is satisfied that the proposal will be consistent with the Draft Remediation SEPP.

Draft State Environmental Planning Policy (Environment)

The Draft Environment SEPP is a consolidated SEPP, which proposes to simplify the planning rules for a number of water catchments, waterways, urban bushland, and Willandra Lakes World Heritage Property. Once adopted, the Draft Environment SEPP will replace seven existing SEPPs. None of the existing SEPPs apply to the site and therefore the Draft Environment SEPP is not considered to be applicable. The Department is satisfied that the proposal is not required to be assessed under the Draft Environment SEPP.

Tweed Local Environmental Plan (TLEP) 2014

The TLEP 2014 aims to encourage the development of housing, employment, infrastructure and community services to meet the needs of the existing and future residents of the Tweed Shire LGA. The TLEP 2014 also aims to conserve and protect natural resources and foster economic, environmental and social well-being.

The development is to be sited in the southern part of the site is currently zoned SP2 Infrastructure (Health Services Facilities). The proposed development is permissible in the zone with consent.

The Department has consulted with Council throughout the assessment process and has considered all relevant provisions of the TLEP 2014 and those matters raised by Council in its assessment of the development (refer to **Section 5**). The Department concludes the development is consistent with the relevant provisions of the TLEP 2014 (**Table B2**).

Table B2 | Consideration of the TLEP 2014

TLEP 2014	Department Comment/Assessment
Clause 4.3 Building height	No maximum height applies to the site under the proposed SP2 Infrastructure zone.
Clause 4.4 Floor Space Ratio	No FSR control applies to the site under the proposed SP2 Infrastructure zone.
Clause 5.10 Heritage conservation	The site is not listed as an item of heritage significance in clause 5.10 of the TLEP 2014. However, the submitted HAR identifies five dry sandstone walls with historic significance. The proposal recommended a range of measures to mitigate any impacts to the identified walls on the site. The proposal is not anticipated to impact upon any sites of Aboriginal heritage (Section 6.8).

Clause 7.1 Acid Sulfate Soils	The site is within the Class 5 category and no works are proposed below +5m AHD or would not lower the water table on adjacent classes of land below +1m AHD. No further assessment in this regard is necessary.
Clause 7.2 Earthworks	The Stage 1 works involves bulk earthworks. The EIS is supported by a Geotechnical Investigation Report to identify the impact of the works on the soil stability of the site. The report concludes that the landslide risk rating for the site is low to very low. Notwithstanding, the report includes recommendations regarding the excavation works, construction of batters and piles. The Department has recommended a condition requiring that Stage 1 construction works comply with the requirements of this report.
Clause 7.3 Flood Planning	Low-lying northern areas of the site comprise flood prone land. The developable area of the site and all components of the development are located above the mapped PMF level. No further assessment of this clause is necessary.
Clause 7.4 Floodplain risk management	This clause applies to land between the flood planning level (FPL) and the PMF or land below the FPL. The clause states that hospitals, if located in this section of the land should not affect the safe occupation of or evacuation from the land. The future hospital on the site is proposed to be located above the PMF. Therefore, no further assessment in this regard is necessary.
Clause 7.8 Airspace operation	The objective of this clause is to ensure that no development compromises the effective and ongoing operation of the GCA or penetrates the OLS of that airport. The matter has been assessed as satisfactory in Section 6.8.5 .
Clause 7.9 Development in areas subject to aircraft noise	The objective of this clause is to prevent noise sensitive development from being located near the GCA and its flight paths. The proposed location of the future hospital is outside the GCA flight path and the ANEF contours as assessed in Section 6.5 and 6.8 .
Clause 7.10 Essential Services	The EIS is supported by an Electrical and Communications Site Infrastructure Management Plan, Integrated Water Management Plan and Infrastructure Management Plan, which demonstrate that the development would be able to connect to the essential services, subject to approval from the relevant regulators and service providers.

Tweed Local Environmental Plan 2000

The northern section of the site comprises unzoned land, being a 'Deferred Matter' under the Tweed Local Environmental Plan 2000. No works are proposed within this section of the site in relation to the hospital. Future biodiversity management works on the site may result in rehabilitation of the farm dam within the coastal wetlands, which would improve the environmental impact on this area.

Other policies

In accordance with Clause 11 of the SRD SEPP, Development Control Plans (DCPs) do not apply to State significant development. Notwithstanding this, the consideration of the relevant development controls contained within the Tweed Development Control Plan 2008 (Tweed DCP) are provided in **Table B3**.

Table B3 | Tweed DCP 2008 compliance table

Tweed DCP 2008	Department Comment/Assessment
A2 – Site Access and Parking Code	The Concept Proposal includes parking provisions exceeding the Tweed DCP requirements. Further assessment would be undertaken in Stage 2.
A3 – Flood Liable Land	Discussed in Section 6.1 .
A6 – Biting Midge and Mosquito Control	Where required, detailed design and measures to ameliorate the potential impact of biting species on staff, patients and visitors can be developed as part of the Stage 2 application.
A11 – Public Notification	Discussed in Section 5 .
A13 – Socio-Economic Impact	Discussed in Section 6.6 .
A15 – Waste Minimisation and Management	Discussed in Section 6.8.6 .
A16 – Preservation of Trees or Vegetation	Discussed in Section 6.3 .
A18 – Heritage	Discussed in Sections 6.8.1 and 6.8.2 .
A19 – Biodiversity and Habitat Management	Discussed in Section 6.3 .

Appendix C – Independent Consultant Advice on drainage

20 February 2019
Department of Planning and Environment
Aditi Coomar
Principal Planner
320 Pitt Street
Sydney
NSW 2000

Dear Aditi

Preliminary review of stormwater management elements associated with Tweed Hospital SSD 9575

1 Introduction

Alluvium is pleased to assist the Department of Planning and Environment (DPE) with a preliminary review of key stormwater management elements of the proposed Tweed Valley Hospital application (SSD application 9575).

Our review has focused on the following documents and models provided in support of the application:

- Bonacci report titled *"Tweed Valley Hospital Development Design Report Civil & Structural Issued for: State Significant Development Application"* dated 19 October 2018, Bonacci reference 130559-BON-CIV-RPT-001, Revision E (the 'Design Report').
- Bonacci report titled *"Tweed Valley Hospital Development Addendum 1 to Design Report Civil & Structural Issued for: State Significant Development Application – Response to Submissions"* dated 24 January 2019, Bonacci reference 130559-BON-CIV-RPT-006, Revision E (the 'Response to Submissions').
- MUSIC model *"Tweed Early Works.sqz"* (the 'MUSIC model').

2 Review scope

Our review focuses on key water management elements of Stage 1 and Stage 2 of the proposed development. Specifically, our review focuses on the potential for the development to impact on water quality and hydrology in areas of the site draining to the adjacent natural wetland that we understand supports endangered ecological communities (EECs).

Early works within the site involved the approval to construct four sediment basins and associated outlet structures along the northern boundary of the site adjacent to a natural wetland area. We understand that the sediment basins were constructed under an earlier approval to ensure that no sediment laden water leaves the site (we assume during most runoff events). The basins were sized considering the tilled farmland condition of the site last year (when the site was previously inspected). The basins were not designed or configured to limit peak flows from the site, only to capture "dirty water" for treatment to an approved quality

prior to discharge into the wetland. These earlier approved works are outside the scope of our review, although we understand that the constructed basins are intended to also function as a component of the Stage 1 soil and water management plan.

Stage 1 works comprise provision of erosion and sediment controls, stripping and stockpiling of topsoil, regrading earthworks within the site and construction of sections of the piped stormwater drainage system leading up to where building works would commence. We understand that the latest conceptual stormwater management configuration for Stage 1 is shown on Bonacci drawing 201074801 C009 Rev P2.

Stage 2 works comprise construction of the hospital buildings, access driveways, carparking, paths, landscaping, stormwater drainage and provision of the final stormwater management measures.

We understand that further refinement of the size of stormwater management measures will be undertaken for Stage 1 based on the construction methodology, staging and final layout of the diversion/catch drains. Conceptual details of the drainage system, detention basins and biofiltration measures will be confirmed as part of the Stage 2 submission. Based on this, we understand that the focus of the preliminary advice is on the appropriateness of the conceptual configuration to address the objectives and targets.

DPE has requested preliminary advice from Alluvium on key elements of the development proposal including:

- The suitability of the proposed conceptual arrangement of the Stage 1 soil and water management works for managing runoff during the Stage 1 earthworks;
- The suitability of the Stage 1 drainage works for integration with the Stage 1 works;
- The stormwater drainage analysis completed for the Stage 2 condition of the site (based on DRAINS inputs/outputs presented in the response to Council's submissions);
- The configuration of the MUSIC model prepared to represent the post Stage 2 condition of the site (i.e. completed development); and
- Comment on whether the proposed Stage 2 stormwater quality management measures are likely to conceptually achieve Councils stormwater quality targets as outlined in their development design specification D7 Stormwater Quality.

We have not completed additional calculations to confirm the adequacy of the size of the proposed water management infrastructure and our preliminary comments are based on our initial review of the model inputs and conceptual layout presented in the supporting documentation.

Our preliminary comments are summarised below for DPE's consideration.

3 Stage 1 comments

Bonacci has prepared a soil and water management plan (SWMP) for the Stage 1 works (Drawing 201074801 C0005 Rev P7 dated 22/01/19). The SWMP shows the location of four sediment basins along the northern boundary, and one adjacent to the southern boundary. These basins form a key component of the SWMP. The four basins along the northern boundary differ to the three basins shown on the SWMP drawings for the early works proposal (Drawing 201074801 C0005 Rev P4 dated 16/10/18). We assume that an additional basin is proposed to be constructed along the northern boundary at part of Stage 1.

Sizing calculations provided with the SWMP appear appropriate based on the estimated catchment areas. Bonacci has adopted a 5-day 85%ile rainfall depth for the calculations which is slightly higher than required in a typical site and is generally appropriate for a development situated in the catchment of a sensitive receiving environment where earthworks may result in soil disturbances exceeding six months. There are slight differences in the size of sediment basins calculated by Bonacci and those shown on the drawings but these generally within 5%.

The SWMP includes a range of other erosion and sediment controls including sediment fences, geotextile inlet filters for constructed stormwater drainage, stabilised construction site accesses, catch drains and native vegetation exclusion zones. The conceptual arrangement of these measures shown on the SWMP is considered appropriate for a DA but is likely to require modification to suit actual construction staging.

Sections of stormwater drainage lines are proposed to be constructed in Stage 1 to provide connection points for future drainage constructed as a component of the Stage 2 building works. The locations of the drainage lines generally align with the concepts for Stage 2. Stage 2 works would need to ensure that the assumed stormwater catchments do not change significantly to that assumed for Stage 1 to ensure that constructed stormwater drainage lines are not over design capacity due to additional catchment area being directed to some of the drainage lines.

4 Stage 2 comments

4.1 Treatment strategy

The proposed Stage 2 treatment strategy outlined in the Design Report comprises a treatment series of swales, Enviropods, bioretention basins and detention basins.

Roof runoff is proposed to be directed to a bioretention basin for treatment prior to discharge. It is considered that there would be considerable potential for roof runoff (and pre-treated road/carparking runoff) to be harvested and re-used within this site for landscape irrigation, toilet flushing and other uses. Reducing the volume of runoff from the site (and particularly during frequent smaller events) is likely to be important for mitigating impacts on the downstream natural wetland. This is discussed further below.

Runoff from carparking and driveway areas would initially be filtered through Enviropod pit inserts. These devices are appropriate for capturing litter, organic debris and coarse/medium sediment. Enviropods include a plastic filter mesh insert that generally has a design life less than 5 years (and potentially less when sharp objects of burning cigarettes enter the device). They are an effective device for capturing litter, but will need regular operation and maintenance, and commitment from the land owner to replace the filter mesh when damaged. Filtered runoff would then be directed to grassed swales or a bioretention basins for fine sediment and nutrient treatment. This concept is considered an appropriate treatment series for these surfaces, although further benefits could be achieved by infiltrating runoff adjacent to paved areas where possible. This would assist with reducing runoff volumes.

The strategy indicates that stormwater treated through bioretention swales and basins would be discharged into the detention basins that function as dry sediment basins for water quality purposes. This is likely to result in the treated water being mixed with sediment deposited in the basin and this would lower the runoff quality. Stormwater treated through bioretention should bypass the detention basins. This bypass flow should be accounted for when finalising the detention basin design.

4.2 Stormwater management targets:

Bonacci has adopted load-based pollutant reduction targets for the development from the Tweed Shire Council DCP and associated Development Design Specifications. The load-based targets outlined in the Design Report are consistent with Council's load based targets. Although, Council indicates that alternative targets may be imposed at specific development sites for receiving water bodies where an adopted management plan or program makes such a recommendation.

Council's current default targets do not require the volume of stormwater runoff to be reduced from development sites and this may be critical for protecting receiving environments such as natural wetlands.

4.3 MUSIC modelling:

Rainfall and potential evapotranspiration (PET) data – Appears that the applicant has not adopted Council's standard MUSIC template that incorporates the local rainfall and PET data. Council's template has rainfall data with an annual average of 1697mm. The adopted rainfall data has an average annual rainfall of 1436mm (approximately 15% lower). It is unclear why Council's standard template was not adopted for this site.

Total catchment area – The total site areas modelled for the pre-development and post development condition were 17.04 ha and 19.68 ha. These areas should be the same to enable the treatment performance of the strategy to be compared. The total site area modelled also differs to that presented in Table 4-1 of the Design Report (i.e. 23.23 ha). The correct catchment area should be confirmed, and the models adjusted accordingly.

Land uses – The pre-development land uses adopted for the site primarily comprise forest and agricultural areas. The estimated areas modelled for each of these land uses appears different to that suggested by recent aerial imagery.

Rainfall-runoff parameters – Adopted pervious areas parameters differ between the pre and post development models. These parameters are based on the soils that exist with the site and should be the same for both models. The adopted parameters also appear to be inconsistent with relevant guideline values.

Treatment nodes – The post development model indicates that the extended detention depth in the bioretention swale would be 0.9m. The drawings indicate that biofiltration measures would have an extended detention depth of 0.15 to 0.5m. Typically, this depth should be around 0.3m maximum for a swale, and 0.6m for a bioretention basin to minimise the time vegetation would be inundated. The dimensions modelled should be adjusted to reflect what is proposed.

Model configuration – The configuration of the treatment nodes in the model does not align with the concept outlined in the Design Report (i.e. Enviropods, swales, bioretention basin and detention basin) and on the drawings. The MUSIC model only includes one bioretention treatment node.

It is considered that the MUSIC models would need to be revised to appropriately reflect the Stage 2 WSUD strategy as proposed in the Design Report and on the drawings. Model inputs should be checked to ensure they accurately reflect the site, are consistent with current practice and reflect the requirements of Council. Adjustments to the proposed measures in the strategy may also be necessary to address the stormwater management issues that are of most concern for the wetland receiving runoff from the development site.

It is considered that concluding that Council's water quality targets would be achieved for the Stage 2 works is not possible at this stage based on the provided strategy and modelling.

5 Key responses to submissions

The following two comments on a similar issue were provided in the response to submissions:

“Further assessment of the proposed stormwater management is required from a volumetric perspective to confirm that the post-development flow regime mimics pre-development (i.e. water balance)” and;

“The civil structural report by Bonacci Group (NSW) Pty Ltd specifies that the proposed stormwater drainage system will be designed to mimic natural flows to minimise future impact to the endangered ecological community in the receiving wetland. Concerns are raised that there are no details on the proposed discharge characteristics and supporting confirmation from a qualified ecologist to indicate that there will be no impact on the existing environmental wetland area downstream.”

Bonacci has indicated in their response that the ‘current stormwater design achieves and surpasses the requirements for water balance. For the stormwater analysis, the site discharge rates have been limited to 200l/s/ha’ and ‘it is proposed to discharge stormwater via headwalls and to mimic natural flow characteristics. The volume of water being discharged by each basin will be controlled by installing an orifice in each basin

discharge pit. Energy dissipation and scour protection will be provided downstream from the headwall to minimise impact of water.'

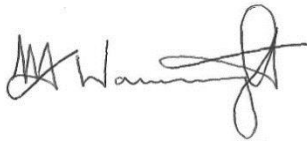
It appears that Bonacci has misunderstood the submission on this issue that is requesting assessment of the changes in the frequency and volumes of stormwater discharged into the natural wetland (i.e. flow regimes) following development. The concern is more with the regular runoff volumes, not peak discharges during infrequent events (although these are also important). A response to this submission would typically require evaluation of continuous hydrology over a long term period and completion of dry spells and low flow duration frequency analysis. Assuming the current natural wetland is susceptible to impacts from increased discharge frequency and flow volumes during dry periods, increased and more frequent runoff volumes from additional impervious areas in the site may impact on the vegetation in the wetland and the animals that rely on this habitat.

Typically, the total stormwater runoff volume draining from the site needs to be reduced to address this objective. Appropriate stormwater management responses to restore the water balance closer to current conditions may include:

- Harvesting of roof and road pavement runoff for irrigation, toilet flushing and/or other appropriate uses within the development;
- Infiltration of stormwater (where appropriate); and
- Diversion of stormwater (where feasible).

If you have any questions on the above review, please do not hesitate to contact the undersigned.

Sincerely

A handwritten signature in black ink, appearing to read 'Mark Wainwright', with a stylized flourish at the end.

Mark Wainwright
Senior Water Resources Engineer
Alluvium Consulting

8 March 2019
Department of Planning and Environment
Aditi Coomar
Principal Planner
320 Pitt Street
Sydney
NSW 2000

Dear Aditi

Supplementary preliminary review of stormwater management elements associated with Tweed Hospital SSD 9575

1 Introduction

Alluvium recently assisted the Department of Planning and Environment (DPE) with a preliminary review of key stormwater management elements of the proposed Tweed Valley Hospital application (SSD application 9575). This preliminary review is outlined in Alluvium letter report *R0619016.10.Tweed Hospital SSD review 190220.pdf* dated 20 February 2019.

A response to the comments outlined in our preliminary review was provided by the applicant in the following documents and models:

- Bonacci report titled *"Tweed Valley Hospital Development Addendum 2 to Design Report Civil & Structural Issued for: State Significant Development Application – Response to Submissions"* dated 28 February 2019, Bonacci reference 130559-BON-CIV-RPT-007, Revision A (the 'supplementary report')
- MUSIC model *"190228 Tweed_MUSIC_Model v0- Murwillambah 6m Rainfall.sqz"* (the 'supplementary MUSIC model').

This review focuses on the additional responses provided in the supplementary report and supplementary MUSIC model. The comments from our earlier review are shown in *italics* below along with any additional comments on the consultant's responses outlined in the supplementary report.

2 Stage 2 comments

2.1 Treatment strategy

The strategy indicates that stormwater treated through bioretention swales and basins would be discharged into the detention basins that function as dry sediment basins for water quality purposes. This is likely to result in the treated water being mixed with sediment deposited in the basin and this would lower the runoff quality. Stormwater treated through bioretention should bypass the detention basins. This bypass flow should be accounted for when finalising the detention basin design.

The applicant has outlined a revised strategy that allows for the biofiltration basins to be separated from the detention basins with overflows from the biofiltration basins to the deeper detention basins only occurring during larger events. The underdrain outlets from the biofiltration would be connected to the detention basin outlet pits (i.e. bypass the detention basin).

It will be important that detailed sizing of the detention basins takes account of the storage loss associated with the biofiltration basin construction (i.e. storage up to the extended detention depth) where a biofiltration basin co-exists within a detention basin.

2.2 MUSIC modelling:

Rainfall and potential evapotranspiration (PET) data – *Appears that the applicant has not adopted Council's standard MUSIC template that incorporates the local rainfall and PET data. Council's template has rainfall data with an annual average of 1697mm. The adopted rainfall data has an average annual rainfall of 1436mm (approximately 15% lower). It is unclear why Council's standard template was not adopted for this site.*

The MUSIC model was updated to incorporate Council's standard template file (Murwillumbah6minRainfallData.mlb).

Total catchment area – *The total site areas modelled for the pre-development and post development condition were 17.04 ha and 19.68 ha. These areas should be the same to enable the treatment performance of the strategy to be compared. The total site area modelled also differs to that presented in Table 4-1 of the Design Report (i.e. 23.23 ha). The correct catchment area should be confirmed, and the models adjusted accordingly.*

Additional plans were provided showing the extents of the modelled catchment area (Appendix C of the supplementary report). The consultant has excluded the portion of the site within the existing wetland that is not to be disturbed by the development from the models. This is considered appropriate.

The total modelled catchment area has been revised to 16.25 ha and this is now consistent for the pre-development and post development models. The revised total catchment area is considered appropriate for the development.

Land uses – *The pre-development land uses adopted for the site primarily comprise forest and agricultural areas. The estimated areas modelled for each of these land uses appears different to that suggested by recent aerial imagery.*

The consultant has provided additional plans showing the extents of the adopted land uses / surface characteristics for the pre-development and post development site configuration. The plans provided appropriately clarify the adopted land uses / surface characteristics and these are considered appropriate.

Rainfall-runoff parameters – *Adopted pervious areas parameters differ between the pre and post development models. These parameters are based on the soils that exist with the site and should be the same for both models. The adopted parameters also appear to be inconsistent with relevant guideline values.*

Council's Development Guidelines indicate that "MUSIC model parameters are to be in accordance with Water by Design (SEQ Healthy Waterways Partnership) MUSIC modelling guidelines 2010". These guidelines are no longer publicly available and will be superseded by an updated 2018 version of the guidelines that is currently released as a consultation draft. The consultant has adopted rainfall-runoff parameters for a 'forested' land use outlined in Table A1.2 of the 2018 guidelines. The adopted parameters are similar to the MUSIC defaults and it is considered that these provide a reasonable representation of the site hydrology for the purposes of preliminary modelling.

The rainfall-runoff parameters outlined in Table A1.2 of the 2018 guidelines were derived back in 2005. It is our opinion that these should be updated considering more recent research outlined in the 2015 NSW MUSIC modelling guidelines. In some cases, parameters in Table A1.2 are incorrect (but not for the forest land use adopted by the consultant). Rainfall-runoff parameters should be selected based on the typical soils found across a site, rather than land use (as indicated by Table A1.2). It is recommended that additional MUSIC

modelling be undertaken for the development adopting the rainfall-runoff parameters outlined in the 2015 NSW MUSIC modelling guidelines based on the soil characteristics observed across the site.

Treatment nodes – The post development model indicates that the extended detention depth in the bioretention swale would be 0.9m. The drawings indicate that biofiltration measures would have an extended detention depth of 0.15 to 0.5m. Typically, this depth should be around 0.3m maximum for a swale, and 0.6m for a bioretention basin to minimise the time vegetation would be inundated. The dimensions modelled should be adjusted to reflect what is proposed.

The extended detention depth in the biofiltration basin has been updated to 0.3m and this is consistent with current practice. Consideration is now being given to separating the biofiltration basin from the detention storage by elevating it above the base of the detention basin and allowing stormwater to overflow/bypass into the detention basin when the extended detention depth is exceeded. Conceptually this is considered an improved configuration, and this has been appropriately modelled in MUSIC.

Model configuration - The configuration of the treatment nodes in the model does not align with the concept outlined in the Design Report (i.e. Enviropods, swales, bioretention basin and detention basin) and on the drawings. The MUSIC model only includes one bioretention treatment node.

It is considered that the MUSIC models would need to be revised to appropriately reflect the Stage 2 WSUD strategy as proposed in the Design Report and on the drawings. Model inputs should be checked to ensure they accurately reflect the site, are consistent with current practice and reflect the requirements of Council. Adjustments to the proposed measures in the strategy may also be necessary to address the stormwater management issues that are of most concern for the wetland receiving runoff from the development site.

The consultant has clarified that the final strategy would also incorporate pre-treatment measures (e.g. Enviropods, Purceptor) to manage runoff quality from carparks and roads prior to discharge into the biofiltration basin. These devices would assist with capturing sediment, litter and organic debris to protect the biofiltration basin from smothering. This would be an appropriate pre-treatment design response, although it is envisaged that these measures would provide limited nutrient removal. It is agreed that excluding these from the model at this stage would be conservative and therefore a reasonable approach.

Modelled outcomes - It is considered that concluding that Council's water quality targets would be achieved for the Stage 2 works is not possible at this stage based on the provided strategy and modelling.

The model results indicate that Council's load-based water quality targets would be achieved utilising biofiltration basins within the site. Although, the modelling results also show that the TN loads and runoff volumes (after treatment) discharged from the site would be 55% and 65% higher respectively than existing conditions.

3 Key responses to submissions

The following two comments on a similar issue were provided in the response to submissions:

"Further assessment of the proposed stormwater management is required from a volumetric perspective to confirm that the post-development flow regime mimics pre-development (i.e. water balance)" and;

"The civil structural report by Bonacci Group (NSW) Pty Ltd specifies that the proposed stormwater drainage system will be designed to mimic natural flows to minimise future impact to the endangered ecological community in the receiving wetland. Concerns are raised that there are no details on the proposed discharge characteristics and supporting confirmation from a qualified ecologist to indicate that there will be no impact on the existing environmental wetland area downstream."

Bonacci has indicated in their response that the 'current stormwater design achieves and surpasses the requirements for water balance. For the stormwater analysis, the site discharge rates have been limited to 200l/s/ha' and 'it is proposed to discharge stormwater via headwalls and to mimic natural flow characteristics.

The volume of water being discharged by each basin will be controlled by installing an orifice in each basin discharge pit. Energy dissipation and scour protection will be provided downstream from the headwall to minimise impact of water.'

It appears that Bonacci has misunderstood the submission on this issue that is requesting assessment of the changes in the frequency and volumes of stormwater discharged into the natural wetland (i.e. flow regimes) following development. The concern is more with the regular runoff volumes, not peak discharges during infrequent events (although these are also important). A response to this submission would typically require evaluation of continuous hydrology over a long term period and completion of dry spells and low flow duration frequency analysis. Assuming the current natural wetland is susceptible to impacts from increased discharge frequency and flow volumes during dry periods, increased and more frequent runoff volumes from additional impervious areas in the site may impact on the vegetation in the wetland and the animals that rely on this habitat.

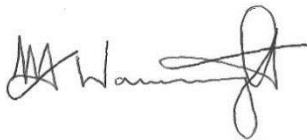
Typically, the total stormwater runoff volume draining from the site needs to be reduced to address this objective. Appropriate stormwater management responses to restore the water balance closer to current conditions may include:

- Harvesting of roof and road pavement runoff for irrigation, toilet flushing and/or other appropriate uses within the development;*
- Infiltration of stormwater (where appropriate); and*
- Diversion of stormwater (where feasible).*

No response has been provided by the consultant on how increased stormwater runoff volumes would be managed within the development to mitigate flow regimes impacts on the downstream wetland that we understand supports endangered ecological communities (EEC's). As outlined above, stormwater harvesting and distributed infiltration of stormwater runoff across the site is likely to be necessary to demonstrate achievement of this objective. Increased sizes of stormwater management measures are also likely to be required to achieve sufficient infiltration.

If you have any questions on the above supplementary preliminary review, please do not hesitate to contact the undersigned.

Sincerely



Mark Wainwright
Senior Water Resources Engineer
Alluvium Consulting

Additional comments on 13 May 2019

It appears that the applicant has removed the proposed sediment basin closest to Cudgen Road. The sub-catchment area draining to this basin was relatively small (Catchment 10 - 0.88 ha) and the latest drawings (Robert Bird Group Dwg C-6-150 Rev 3) indicates that this sub-catchment will now be directed to one of the existing basins to the north (Basin A on Robert Bird Group Dwg C-6-150 Rev 3 – the western basin). The latest drawings indicate that this basin will have a total basin volume of 3500 cu.m, which aligns with the previous Bonacci calculations.

With the additional catchment directed to Basin A, the size of the basin should be increased from 3,500 cu.m to approximately 4,000 cu.m based on the Bonacci calculations. It is not known from the available data what the constructed size of Sediment Basin A is to confirm if it should be increased to manage the larger sub-catchment being treated. There should be no additional volume requirement for the other three sediment basins.

Our comments focus on stormwater quality and quantity management, and particularly the longer term conditions that have the potential to impact significantly on the downstream coastal wetland.

An important consideration is that the proposed development is located on land mapped as “proximity area for coastal wetlands” in SEPP (Coastal Management) 2018. The requirements of the SEPP will therefore apply to the proposed development. Specifically in relation to stormwater management, the applicant would need to demonstrate that the:

- Proposed development will not significantly impact on the biophysical, hydrological or ecological integrity of the adjacent coastal wetland
- Proposed development would not significantly impact on the quantity and quality of surface and groundwater flows to and from the adjacent coastal wetland

Appendix D - Key reasons for determination

Appendix E – Recommended Instrument of Consent