Tweed Valley Hospital Stage 2

State Significant Development Assessment SSD 10353

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Title: Tweed Valley Hospital Stage 2

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Cover image: Artists Impression of Tweed Valley Hospital (Source: Applicant's Response to Submissions)

Glossary

Abbreviation	Definition
AA	Airservices Australia
AHD	Australian Height Datum
AOP	Agricultural Offset Plan
APZ	Asset Protection Zone
Applicant	Health Administration Corporation
BC Act	*Biodiversity Conservation Act 2016*
BDAR	Biodiversity Assessment Report
BMP	Biodiversity Management Plan
CASA	Civil Aviation Safety Authority
CIV	Capital Investment Value
Council	Tweed Shire Council
CTPMP	Construction Traffic and Pedestrian Management Plan
Coastal Management SEPP	State Environmental Planning Policy (Coastal Management) 2018
DCP	Tweed Development Control Plan 2008
Department	Department of Planning, Industry and Environment
DPI	Department of Primary Industries, DPIE
EEC	Endangered Ecological Communities
EESG	Environment, Energy and Science Group of the Department of Planning, Industry and Environment
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	Environmental Planning and Assessment Regulation 2000
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPI	Environmental Planning Instrument
ESD	Ecologically Sustainable Development
GANSW	Government Architect NSW
GFA	Gross Floor Area
GTP	Green Travel Plan
HAR	Heritage Assessment Report

Heritage NSW	Heritage Division, Department of Premier and Cabinet
ICNG	Interim Construction Noise Guideline
IPA	Inner Protection Area
IPU	In-Patient Unit
ISEPP	State Environmental Planning Policy (Infrastructure) 2007
LG Act	*Local Government Act 1993*
Minister	Minister for Planning and Public Spaces
MNES	Matters of National Environmental Significance
NGL	Natural Ground Level
NML	Noise Management Level
NVIA	Noise and Vibration Impact Assessment Report
OPA	Outer Protection Area
PBP	Planning for Bushfire Protection
PMF	Probable Maximum Flood
RFS	NSW Rural Fire Service
RL	Relative Levels
RTS	Response to Submissions
SDRP	State Design Review Panel
SEPP	State Environmental Planning Policy
Secretary	Secretary of the Department of Planning, Industry and Environment
SRD SEPP	State Environmental Planning Policy (State and Regional Development) 2011
SSD	State Significant Development
SSF	State Significant Farmland
SRTS	Supplementary Response to Submissions
TfNSW	Transport for NSW
TfNSW (RMS)	TfNSW (Roads and Maritime Services)
TIA	Traffic Impact Assessment Report
TEC	Threatened Ecological Community
TLEP	Tweed Local Environment Plan
TVH	Tweed Valley Hospital
VIA	Visual Impact Assessment

Executive Summary

This report provides an assessment of a State significant development (SSD) application for Stage 2 of the New Tweed Valley Hospital (TVH) (SSD 10353) comprising detailed design, construction and operation of a new hospital and associated works, located at 771 Cudgen Road, Cudgen. The Applicant is Health Infrastructure, on behalf of Health Administration Corporation and the proposal is located within the Tweed Shire local government area.

The Stage 2 application is SSD under clause 4.36 State and Environmental Planning Policy (State and Regional Development) 2011, as it is development for the purpose of a hospital with a CIV of more than $30 million. Therefore, the Minister for Planning and Public Spaces is the consent authority.

The site is in a predominantly rural area and was used for agricultural purposes prior to being rezoned for the purpose of a health facility in February 2019. Following the rezoning of the site, a concept development application (SSD-9575) for the new Tweed Valley Hospital (TVH) was approved by the Minister of Planning and Public Spaces on 11 June 2019, and comprised:

- the Concept Proposal for maximum building envelopes of the hospital, a building for support services and associated works and upgrade to the Tweed Coast / Cudgen Road intersection.
- Stage 1 works including bulk earthworks, piling, remediation works and roadworks.

The Concept Proposal was later modified to include an additional envelope for a multi-deck carpark, modifications to the building for support services, addition of a temporary building for skills centre and minor increase in the gross floor area. The Stage 1 works have commenced on the site.

Stage 2 of the TVH development (Stage 2 application) seeks approval for detailed design, construction and operation of a new hospital building (two-nine storey in height); three (one-two storey) buildings for support services (Health Hub); a temporary building accommodating a skills centre; car parking areas including the multi-deck carpark; internal road layouts; landscaping; coastal wetland rehabilitation; services; signage; operation and use of the site; and external roadworks including intersection upgrades.

The Stage 2 application is informed by the design and operational parameters of the TVH Concept Proposal. The proposal would generate over 2700 construction jobs (for the two stages with 771 workers annually for 3.5 years) and 2055 operational jobs (208 additional). Upon completion, the facilities at the exiting Tweed Heads Hospital at Tweed Heads would be relocated to the TVH.

The Department of Planning, Industry and Environment (the Department) considers the application is consistent with the objects of the *Environmental Planning and Assessment Act 1979* (EP&A Act), including ecologically sustainable development, and the North Coast Regional Plan 2036 (NCRP) as it relates to healthcare and education sectors continuing to deliver important services in the northern region. The suitability of the site for a new hospital was assessed is detail in the TVH Concept Proposal and was considered satisfactory. The Stage 2 application proposes the development within the footprint approved by the Concept Proposal. The Department is satisfied that the proposal will provide critical public infrastructure in the region and improved health care facilities. The Department also considers that that the key issues (built form and urban design, landscaping, visual impacts, biodiversity and coastal wetlands, traffic and transport, noise, and agricultural offsets) were

satisfactorily considered by the Applicant and found to be acceptable with the inclusion of environmental mitigation measures and recommended conditions of consent.

Built form, urban design and visual impact

The proposed scale, siting and design of the buildings in the Stage 2 application is consistent with the scale envisaged by the TVH Concept Proposal. The internal design of the hospital and the overall site plan responds reasonably to the site constraints and would ensure that the facility operates efficiently in the future with minimal amenity impacts on the surrounding properties and rural areas.

The Department's assessment of the built form and visual impacts concludes that the new hospital building, and the multi-deck carpark 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 the building mass is driven by the clinical and functional needs of northern NSW. The Applicant has undertaken a reasonable approach to break the building mass where possible and stepped the built form to provide a transition with the surrounding agricultural context.

To reduce the visual dominance of the hospital and the carpark, the Department has recommended conditions requiring additional large canopy tree plantings on all sides of the building and within the setbacks to the west, north and south. The Department is satisfied that this additional vegetative screening would reduce the overall visual impacts of the buildings.

Landscaping

The proposed landscaping within the site creates a predominant east-west axis, the green spine, with connected public open spaces between the buildings on the site. The landscaping would also include retention of significant vegetation on the site, vegetative buffers to screen the development from agricultural spray dust on adjoining lands and planting to facilitate biodiversity conservation.

The Department finds the proposed landscaping to be satisfactory subject to the provision of additional canopy trees.

Biodiversity impact and coastal wetlands

The northern section of the site accommodates mapped coastal wetlands to the north and contains Endangered Ecological Communities (EEC) and Threatened Ecological Communities. The Stage 2 application is supported by a Biodiversity Assessment Report (BDAR), which concludes that no serious or irreversible biodiversity impacts are envisaged due to this development, consistent with the TVH Concept Proposal. It includes a Biodiversity Management Plan (BMP), which provides a framework for long-term biodiversity management and mitigation measures during construction.

The Department's assessment of the BDAR concludes that the works would have no significant impacts on the identified biodiversity in the locality subject to implementation of the BMP, including measures in relation to vegetation management, habitat management, rehabilitation, monitoring and reporting.

The quantity of stormwater runoff from the site may have some impact on the hydrology of the coastal wetlands and EEC habitat therein. To mitigate the identified impacts, the Department has recommended conditions requiring additional analysis of surface flows during the dry season and additional stormwater harvesting measures to capture flows from the site during this time. Conditions to allow for groundwater recharge have also been recommended.

The Department is satisfied the proposal would not result in any unacceptable adverse impacts on the biophysical, hydrological or ecological integrity of the wetlands, subject to the implementation of the BMP and stormwater harvesting measures within the site.

Traffic and transport

Traffic impacts of the proposal have been adequately addressed through sufficient on-site car parking spaces, roadworks, bus bays, signalised intersection at the entrance, pedestrian infrastructure and an upgrade to Tweed Coast Road / Cudgen Road intersection. The Department has recommended conditions to ensure that the proposed roadworks, car parking areas, driveways, intersection upgrade and pedestrian infrastructure be undertaken prior to commencement of operation of the hospital.

Agricultural offset measures

The Applicant has lodged an Agricultural Offset Plan with strategies and programs to offset the impacts of loss of State Significant Farmland due to the development. The Department considered the offset measures to be reasonable. The Department has recommended conditions requiring the Applicant to set out an implementation plan prior to the commencement of operation that would reflect the recommendations of Agricultural Offset Plan, as well as set out provisions of local food procurement strategies where feasible.

Noise

The proposal includes a detailed assessment of construction and operational noise including the noise from helicopter operations. The Department's assessment of the submitted noise mitigation measures concludes that the measures are satisfactory as the predicted noise levels from the development would comply with the established noise trigger levels at the nearby sensitive receivers.

Other issues

The Department has recommended conditions to ensure residual or operational issues, including measures to ensure timely connections to Tweed Shire Council's sewer and water infrastructure, payment of required headwork charges to Council for infrastructure connections and maintenance of the significant heritage dry-stone walls on the site.

Department's Engagement

The Stage 2 application and the Environmental Impact Statement was publicly exhibited from 10 October 2019 until 8 November 2019. The Department received 25 submissions, including 11 from public authorities (including Tweed Shire Council), 12 individual submissions from the public (including three objections) and two submissions from community / special interest groups. Key issues raised in the submissions include built form and visual impacts, traffic, biodiversity, agricultural impacts and noise.

In response to the submissions, the Applicant's Response to Submissions (RTS) and supplementary RTS included amendments to bioretention basin design, the sewer pump station, removal of a community garden and additional details in relation to bus stops. Additional information was also provided to address issues raised in the submissions.

An additional six submissions from public authorities and two public submission was received following the submission of the RTS and SRTS.

Contents

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 Stage 2 of the new Tweed Valley Hospital (TVH) at 771 Cudgen Road, Cudgen (SSD 10353). Health Infrastructure, on behalf of Health Administration Corporation (the Applicant) proposes Stage 2 of the approved TVH Concept Proposal comprising:

- the detailed design and construction of a new hospital building (up to nine storeys in height).
- design and construction of three buildings for support services (Health Hub) and a temporary building accommodating a skills centre during the Stage 2 construction phase.
- car parking areas including the detailed design and construction of a multi-deck carpark.
- internal road layouts, landscaping, wetland rehabilitation, services, and signage.
- operation and use of the hospital and the ancillary buildings on the site.
- external roadworks including new signalised intersections and upgrades to existing intersection.

The concept development application (TVH Concept Proposal) (SSD 9575) was approved on 11 June 2019 and comprised the Concept Proposal for building envelopes of the hospital, a multi-deck carpark, associated works within the site and external roadworks. It also included Stage 1 works comprising bulk earthworks, installation of piles, remediation works and roadworks.

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**).

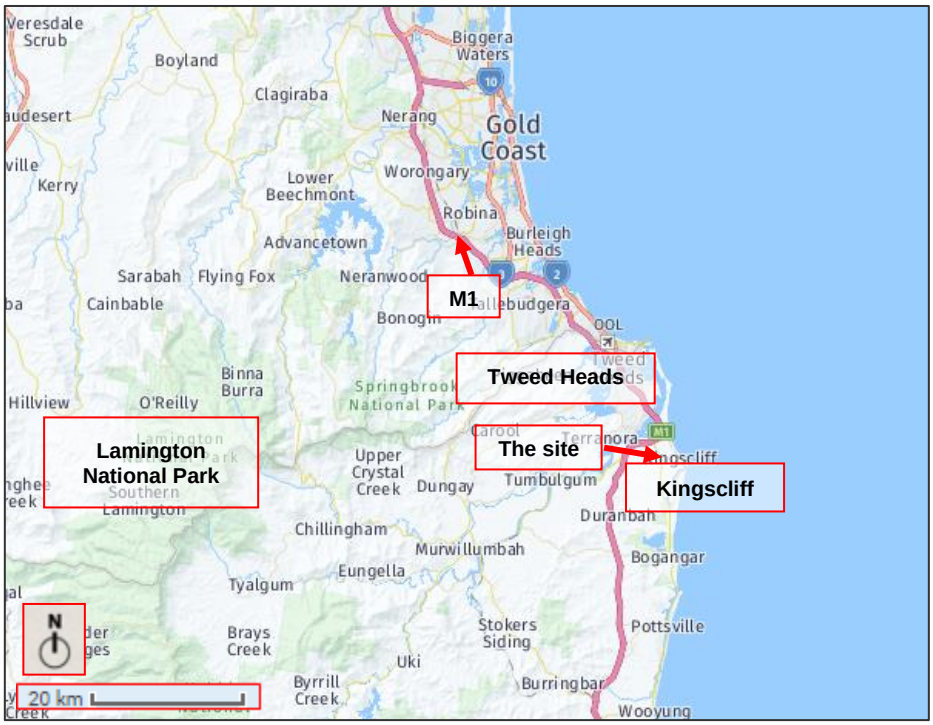


Figure 1 | Regional Context Map (Source: Nearmap 2020)

Site characteristics

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 and 185m frontage to Turnock Street (north-eastern boundary). The southern and south-western sections of the site, fronting Cudgen Road, comprise 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 northern section of the site supports a dense covering of native bush vegetation, a farm dam and a pump (not in use) are in located this area. A fruit tree orchard is located on the eastern boundary.

The site is also subject to several constraints, including:

- the northern edge of the site accommodates 'coastal wetlands' (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).
- existing vegetation includes Endangered Ecological Community (EEC), sections of which are identified as potential Koala Habitat under the former 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.
- northern part of the site comprises bushfire prone land (category 1 vegetation and buffer) and an Asset Protection Zone (APZ) applies to the northern part of the site.
- the site includes Acid Sulfate Soils mapped under the Tweed Local Environmental Plan (TLEP) 2014.

The existing features of the site and constructed sediment basins are identified in **Figure 2** and images of the site are provided in **Figures 3**.

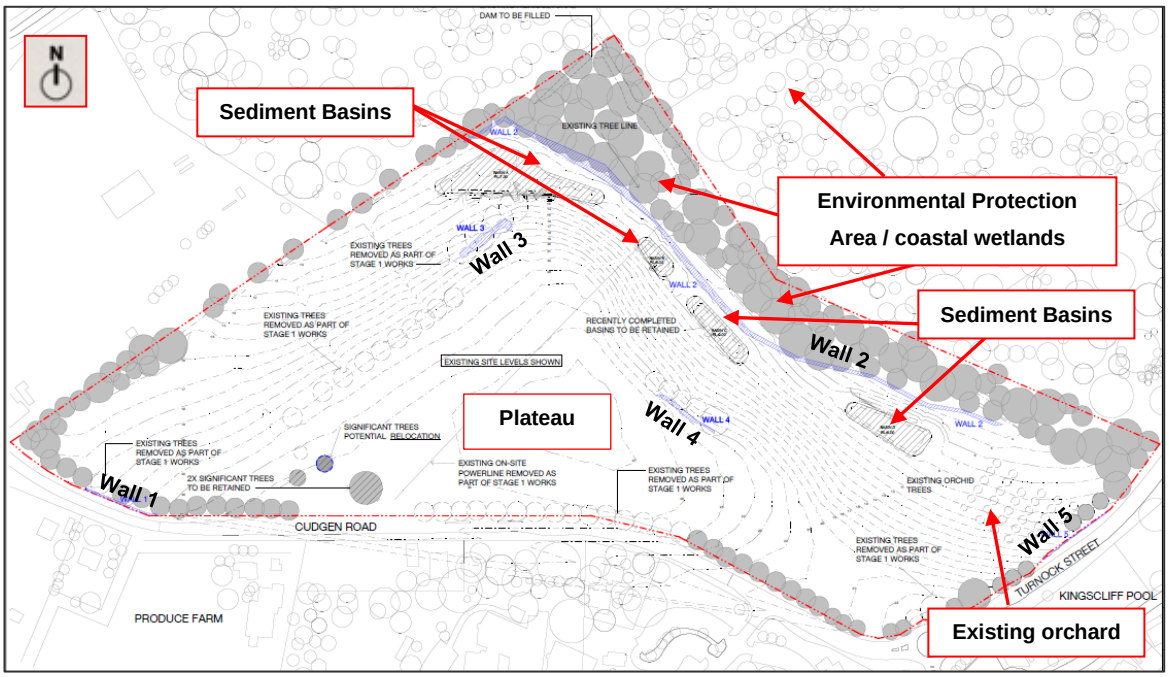


Figure 2 | Main features of the site (Source: Applicant's EIS)

Figure 3 | View looking north to environmental area, over existing sediment basin (Source: Applicant's EIS)

Heritage

Five dry-stone walls previously existed on the site (at the time of assessment of SSD-9575), which were potentially built by South Sea Islander farm workers in early 1900s. Three walls are located on the perimeter of the site, and two located within the cleared section of the site marked in **Figure 2**.

1.2 Previous use of the site and works undertaken by the Applicant

The southern part of the site (except the Environmental Protection Area) was previously zoned RU1 Primary Production and R1 General Residential zoned under the TLEP 2014. This section of the site was also mapped as State Significant Farmland in the Northern Rivers Farmland Protection Project 2005 and as Biophysical Strategic Agricultural Land in the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.

The State Environmental Planning Policy Amendment (Tweed Valley Hospital) 2019 (SEPP) amended the TLEP 2014 on 22 February 2019, by rezoning this part of the site from RU1 and R1 to SP2 Infrastructure (Health Services Facility). The northern part is zoned DM Deferred Matter under TLEP 2014.

Prior to the acquisition of the land by the Applicant in late 2018, the primary use of the southern section of the site (about 11.24ha) was for agriculture. The Applicant undertook preliminary works on the southern part of the site under the provisions of Part 5 of the EP&A Act in 2018, after the acquisition of the land. The Applicant has advised that a Review of Environmental Factors (REF) was completed prior to undertaking these works, which include:

- 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.
- demolition of existing onsite buildings and structures (the previous residence and the farm sheds).
- temporary car parking areas for construction works in relation to the preliminary works.

The site is subject to ongoing construction works pursuant to Stage 1 of SSD-9575 (shown in **Figure 4**), which includes bulk earthworks, installation of piles within the approved hospital footprint, roadworks, benching and creating building platforms for the future hospital and the carparks.

Trees within the proposed development footprint have been removed under Stage 1 works, excluding the existing orchard on the eastern boundary and the significant vegetation to the north.

Three dry-stone walls (two in full and one in part) located within the development footprint and Access A approved by the TVH Concept Proposal, have been removed by the Applicant (Wall 1, 3 and 4 marked in **Figure 2**), pursuant to Stage 1 of SSD-9575. Two walls not impacted by the proposed development (Wall 2 and 5) have been retained.

1.3 Access

Vehicular access to the site has historically been provided via Cudgen Road. The Applicant has undertaken works to create two new vehicular access points to the site at the locations approved in Stage 1 (identified as Access A and Access D in **Figure 7**):

- Access A: Left-in only from Cudgen Road at the western boundary, with Auxiliary Left turn (AUL) treatment.
- Access D: Access D at the south-western corner of the site that acts as the fourth leg of the Cudgen Road / Turnock Street intersection.

The site and the surrounding land uses are primarily reliant on 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 currently have limited shoulders with no provisions for kerbside parking spaces. Two bus stops located on the Cudgen Road frontage of the site serve the educational, commercial and residential facilities in the immediate catchment.

1.4 Surrounding development

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 1**). The intersection of Tweed Coast Road and Cudgen Road is located near the south-western corner of the site.

The northern and north-western boundary of the site adjoins mapped coastal wetlands. Majority of the western part of the site is mapped as a regional fauna corridor by the former 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 (Environmental Area in **Figure 4**).

A Council owned piped drainage line runs along the western boundary on the adjoining property draining stormwater from Cudgen Road into the wetland.

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 State Significant Farmland (SSF).

Immediately to the east, on the opposite side of Turnock Street is Kingscliff Aquatic Centre, beyond which is the residential area of Kingscliff, predominantly characterised by one and two storey detached dwellings.

Kingscliff 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) is a coastal town with residential developments, schools, library, TAFE, pool, low scale commercial developments, tourist activities and a population just under 7500 people. Cudgen village, located on the western side of Tweed Coast Road, has a population of 1000 people.

Figures 4 - **6** identify the site in the context of the surrounding developments and the broader locality.

Figure 4 | Aerial view of site showing the ongoing construction works and the surrounding developments (Source: Nearmap 2020)

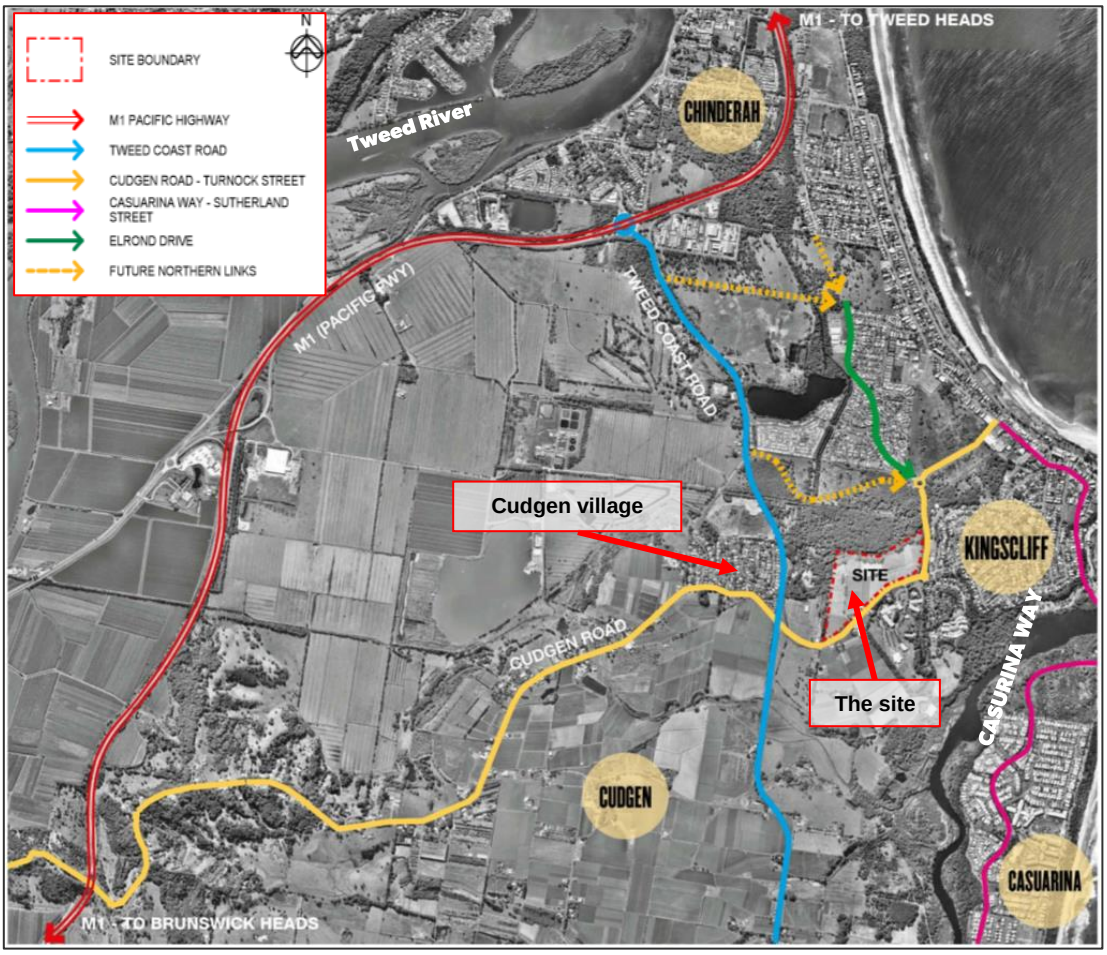


Figure 5 | Local context map (Source: SSD-9575)

Figure 6 | Intersection of Tweed Coast Road and Cudgen Road (Source: Google Maps 2020)

2 Project

The key components and features of the proposal, as refined in the Response to Submissions (RTS) are provided in Table 1 and shown in **Figures 7** to **25.**

Table 1 | Main components of the project

Aspect	Description
Project Summary	Stage 2 of the TVH (Stage 2 application) comprising the detailed design, construction and operation of a new hospital building, the Health Hub, a temporary skills centre, a multi-deck carpark, internal road layout and at-grade carparks, external roadworks, landscaping, wetland rehabilitation, services and signage.
Site Area	19.38ha
Development Components	
New Hospital Building	• Design and construction of the two-nine storey new hospital building within the building envelope as approved by the TVH Concept Proposal. • The built form comprising four built forms connected by a central core and additional low scale elements at the building edges. • The hospital building accommodates the following main elements: ○ basement level: loading docks, service areas, mortuary. ○ lower ground floor: emergency department, pharmacy, pathology, imaging, mental / community mental health. ○ ground floor: main entry / retail / café areas, administration, integrated cancer centre, radiation oncology, renal unit, imaging, ambulatory services. ○ Level 1: pre-operative services, maternity unit and plant rooms. ○ Level 2: child / adolescent / older person's units, rehabilitation units. ○ Level 3: intensive care, cardiology and in-patient units (IPU). ○ Levels 4 and 5: IPU ○ Level 6: rooftop plant rooms. ○ roof (core): a helipad. ○ staff workspaces / plant rooms and ancillary services at each level. ○ circulation corridors and lifts for vertical circulation at each level. ○ internal courtyards and terraces designed within each level.
Health Hub	• Three new buildings (one to two storey), at the site entrance to the east of the new hospital building, comprising: ○ a shelter and retail kiosk adjacent to the site entrance. ○ a learning, development and research (LRD) building (education, training and research for the TVH staff and students) at the centre. ○ clinical (oral / Aboriginal health) services and Health Assessment and Recovery Program (HARP) services to the east.

Temporary 'Tweed Valley Skills Centre'	• A temporary single storey elevated building to the east of the Health Hub fronting Cudgen Road, to be on the site during the Stage 2 construction works. • The building is to be used in conjunction with NSW TAFE and include services related to education, design, employment and business development during the construction phase. • The building is to be removed at the end of the Stage 2 construction period and landscaped as part of the final plans.
Multi-deck Carpark Building	• A covered carpark with ten carparking levels and a simple rectilinear form, accommodating: o staff and public car parking for the site. o end-of-trip facilities for staff.
Building Heights	• New hospital building: o a maximum building height of 44.7m above the natural ground level (NGL) (maximum RL 64.65) including rooftop helipad. o a variable height of 26.7 – 31.2m above NGL (maximum RL 54.5) excluding the plant rooms (main building mass). • Health Hub buildings: o a maximum building height 8.1m above NGL (maximum RL 34.6). • Tweed Valley Skills Centre: o a maximum height of 8.4m (maximum RL 30.40). • Multi-deck carpark building: o a maximum building height of 29.2m (maximum RL 46.15).
Gross floor area (GFA)	• GFA of 65,046m² for all permanent buildings, including: o new hospital building: 62,096 square metres (sqm). o Health Hub buildings: 2950sqm. • Temporary 'Tweed Valley Skills Centre: 612sqm.
Total Hospital Beds	• A maximum of 499 hospital beds, comprising: o 451 IPU beds o 48 day-only beds. • 46 emergency treatment spaces.
Car Parking	• A total of 1538 spaces (1075 for staff and 463 for public) including: o 1388 (1075 staff and 313 public) spaces in the multi-deck carpark. o 128 spaces for public in the at-grade carpark on the eastern side. o 22 short-term car spaces for public. • 23 drop-off / pick-up bays.
Bicycle parking	• 52 bicycle spaces for staff. • 20 bicycle spaces for visitors (public).

Road and Intersection Works	• External road works, including:
	  ○ upgrade to the Tweed Coast Road / Cudgen Road intersection.
	  ○ signalised intersection on Cudgen Road at the entrance to the site.
	  ○ construction of two new bus bays / stops along the Cudgen Road frontage replacing the existing bus stops.
	  ○ a secondary access point off Cudgen Road east of the main entry.
	• Internal road network within the site.

Landscaping	• Landscaping works within the site, including:
	  ○ landscaped gardens / lawns, pathways for pedestrians and cyclists.
	  ○ bioretention areas and vegetative buffer areas, roadside landscaping.
	  ○ landscaped pedestrian entry plaza and Health Hub civic areas.

Signage	• Illuminated identification sign on the front façade of the hospital. • Illuminated emergency identification sign (Emergency Department). • Three illuminated identification / wayfinding signs on the site frontage. • Smaller internal precinct identification and way finding signs.
Jobs	• Estimated 2055 operational jobs in 2031 (additional 208 jobs). • 771 construction jobs created per year over 3.5 years (2700 in total).
CIV	• Commercial in confidence, but in excess of $30 million.
Construction Hours	• Monday to Friday: 7am to 6pm. • Saturday: 8am to 1pm. • No work Sundays or Public Holidays.

2.1 Physical layout and design

Siting of the development and site layout

The site masterplan includes the new hospital building being located predominantly located on the plateau and ridgeline of the site, and a minimum setback of 62.9m from the Cudgen Road boundary.

The location of the new hospital and the ancillary buildings would be clear of the APZ applying to the north-western part of the site, the tree trunk line of the mapped coastal wetlands to the north. The new hospital building including the landscaped areas and the roadworks would be above the PMF level for the site and retain the existing significant dry-stone walls 2 and 5.

The design of the hospital is based on two predominant axes, the north-south axis and the east-west axis or the ‘green spine’.

The primary access the site would be provided from Cudgen Road, at the centre, via a signalised intersection. The main public entrance would link to a tree lined boulevard within the site, running parallel to Cudgen Road and the ‘green spine’ within the new hospital building (identified in **Figure 7** and **8**). The boulevard would connect the public realm through the length of the development in parallel to the pedestrian link and Cudgen Road, providing a landscaped pedestrian and public vehicle access route.

The multi-deck carpark is proposed to be located to the west of the new hospital building and accessed internally from the boulevard. The Health Hub is proposed to be located near the site entrance and to the east of the main public link. The temporary Tweed Valley Skills Centre building would be located further east of the Health Hub, during the Stage 2 construction works. A further at-grade carpark is proposed to the east of the new hospital building and at the rear of the Health Hub.

The main access points to the site are listed below and identified in **Figure 7** along with the buildings:

- **Access A**: Existing access constructed under Stage 1. It is located at the easternmost point of the site and would provide vehicular access for staff, emergency and service vehicles to connect to the service ring road.
- **Access B**: Signalised access to / from Cudgen Road. This is the site's primary access and would provide access for visitors and a secondary access for emergency vehicles and staff.
- **Access C:** Left-in only access from Cudgen Road, east of the Kingscliff TAFE access, with a short auxiliary lane treatment. Access C would provide access to visitor car parking and certain services located in the eastern part of the new hospital building, as well as for direct access to the transit pick-up.
- **Access D:** Existing access constructed under Stage 1. This would provide access to the service ring road, staff carpark, emergency and service vehicles and a cycleway that around the service ring road. There are opportunities for the boulevard extending through and connecting with Access D as part of future development potential to the east of the Health Hub.

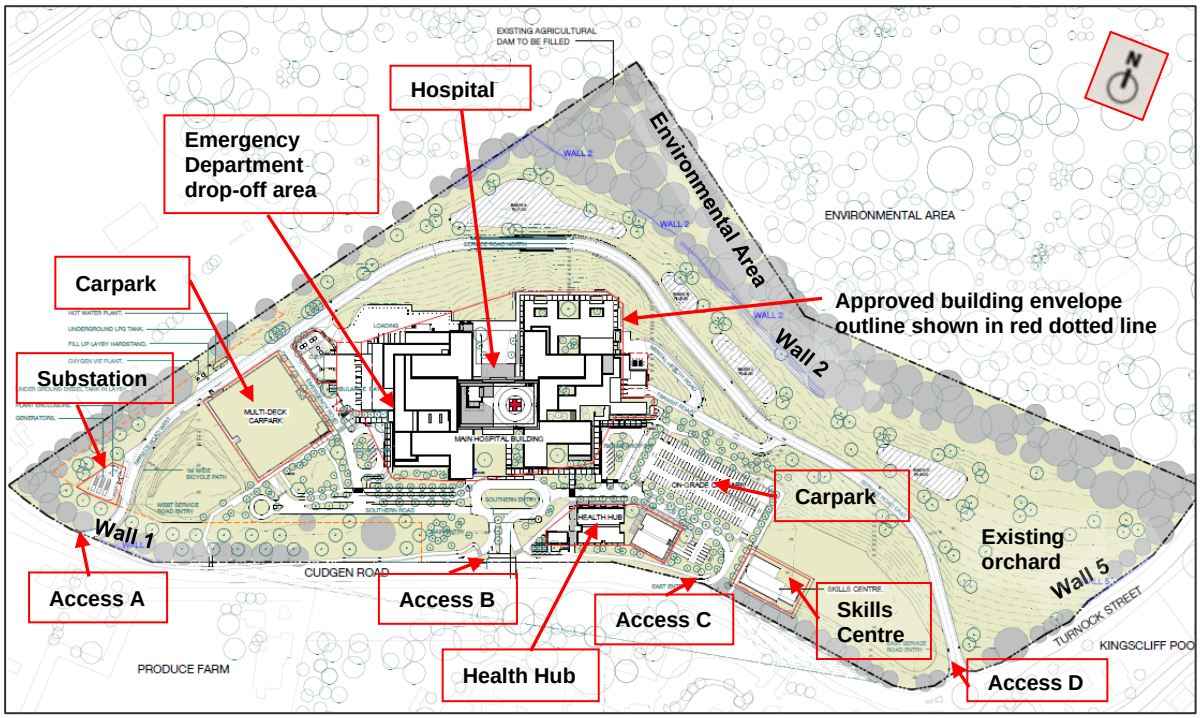


Figure 7 | Site layout and location of site access points (Source: Applicant's RTS)

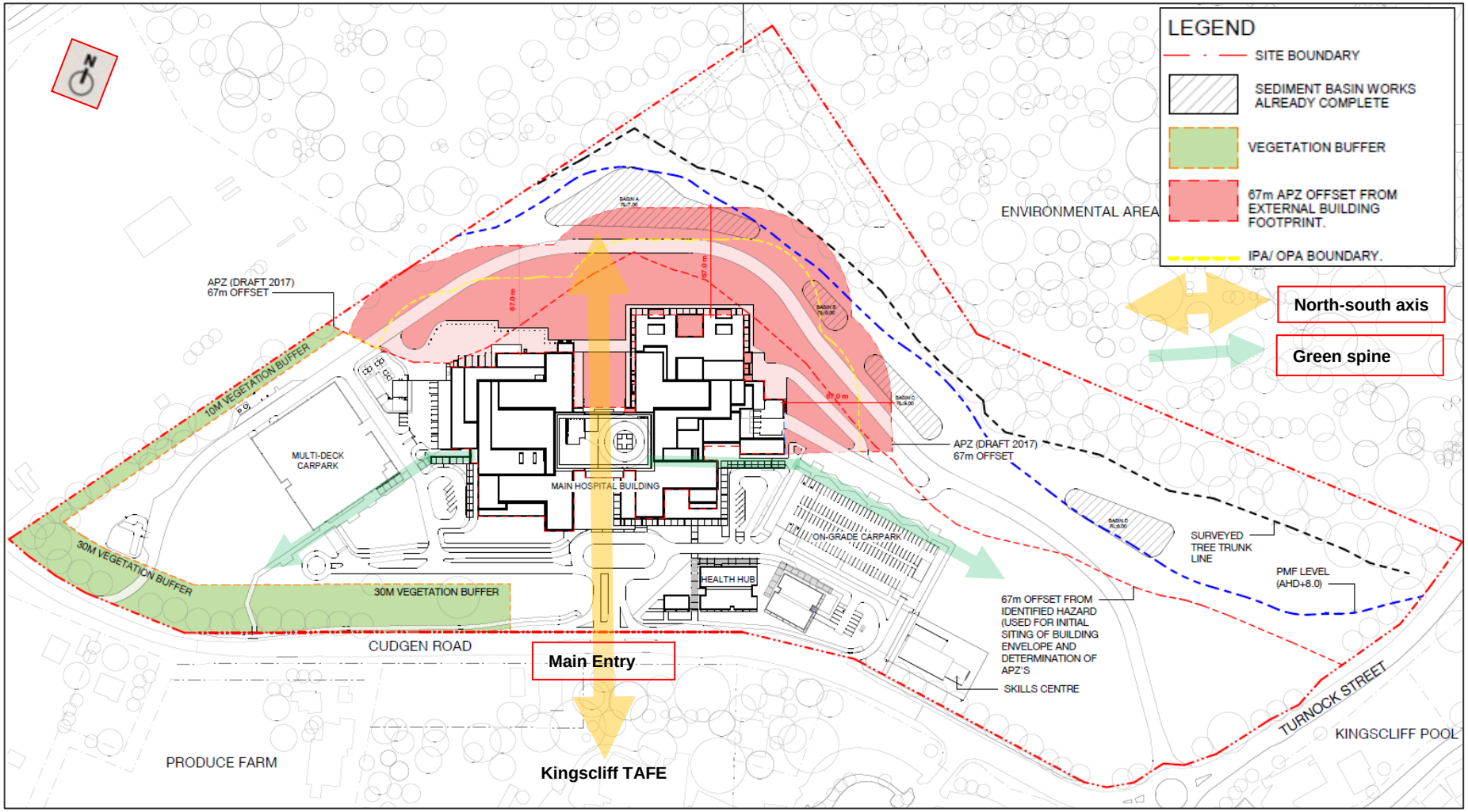


Figure 8 | Siting of the development in the context of the site constraints and the predominant axes (Source: Applicant's RTS)

New hospital building

The new hospital building would be predominantly located on the plateau and ridgeline of the site. Consistent with the TVH Concept Proposal, the main entry to the hospital would be located at RL 27.75 and the maximum height of the roof top helipad would be at RL 64.65. The building would appear as a six-storey structure, plus plant and helipad, from Cudgen Road. The new hospital building would have minimum setbacks of 62.9m from Cudgen Road, 320.8m from the east boundary, 57.9m from the west boundary and 114m from the northern boundary.

The building is proposed to be designed as a series of clustered built forms, including four main wings or 'Quadrant Anchors' (six to seven storeys) connected by a central core (seven to eight storeys excluding the plant room) and with smaller building elements stretching out on the eastern and western sides. Plant rooms are proposed mainly on the roof of the hospital building within the central core. A helipad is proposed at the roof level on top of the plant rooms.

The internal layout of the new hospital building is ordered around a main north-south civic axis and an east-west 'green spine' as identified in **Figure 9**. The functional areas of the building at each level, the key pedestrian linkages and main public realm spaces are arranged along the axes. The axes also aim to capture solar access to internal areas and views of the surroundings. The conceptual built form of the hospital with the axes, the central core and the landscaping are shown in **Figure 9** and **10**.

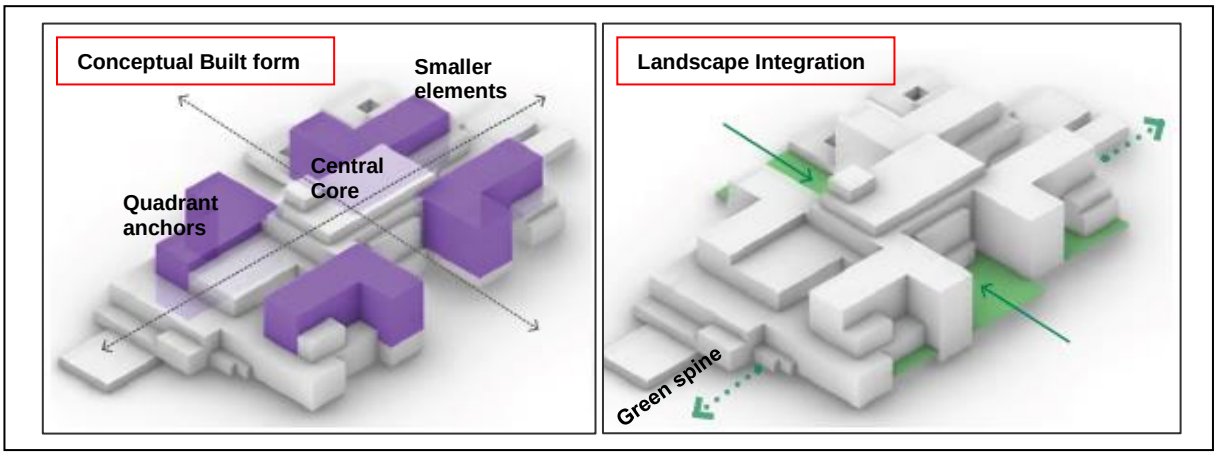


Figure 9 | Conceptual built form (left) and the integration of landscaping (right) (Source: Applicant's EIS)

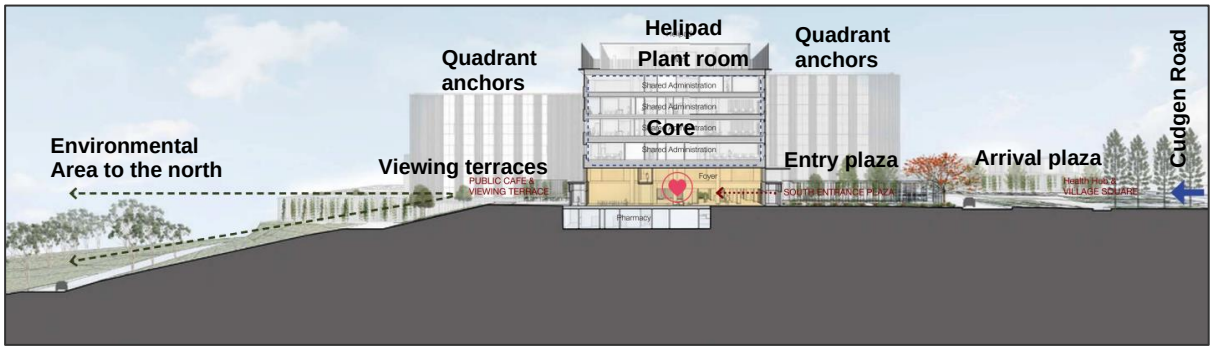


Figure 10 | Cross section through north-south axis identifying the building elements (Source: Applicant's EIS)

Each floor of the new hospital building is designed to accommodate the functional parameters of the building with the day-only units, ambulatory, emergency, administrative, mental health and cancer centre on the lower floors with the IPUs proposed on the upper levels. The internal layout of the eastern wings of the building also allow for the incorporation of courtyards and green spaces at the lower ground, ground and upper levels. The entry level plan for the hospital is provided in **Figure 11**.

Figure 11 | Main Entrance Level / Ground Floor Level layout (Source: Applicant's RTS)

Artist's impressions of the new hospital building, and elevations are provided in **Figures 12** to **15**.

Figure 12 | New hospital building as viewed from Cudgen Road (Source: Applicant's RTS)

Figure 13 | Entrance plaza in front of the new hospital building (Source: Applicant's RTS)

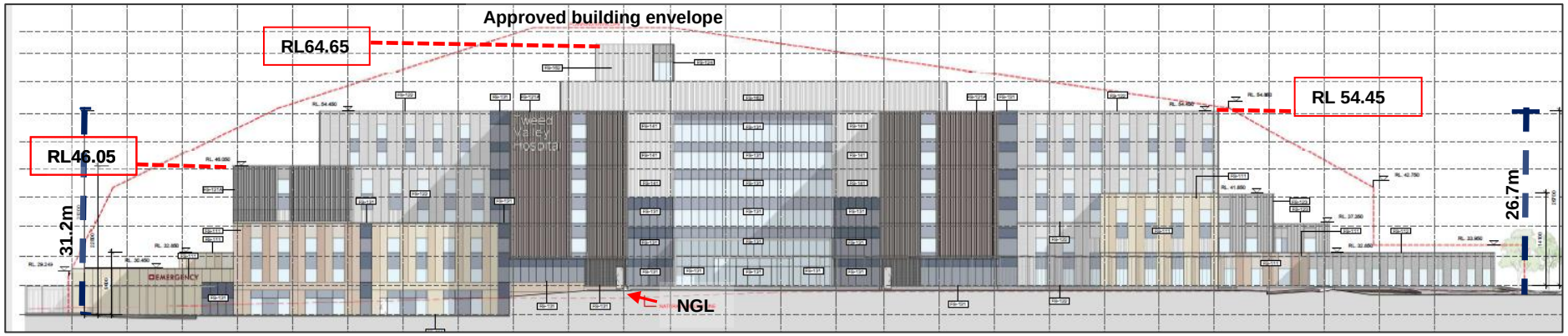


Figure 14 | New hospital building elevation fronting Cudgen Road (south) (Source: Applicant's RTS)

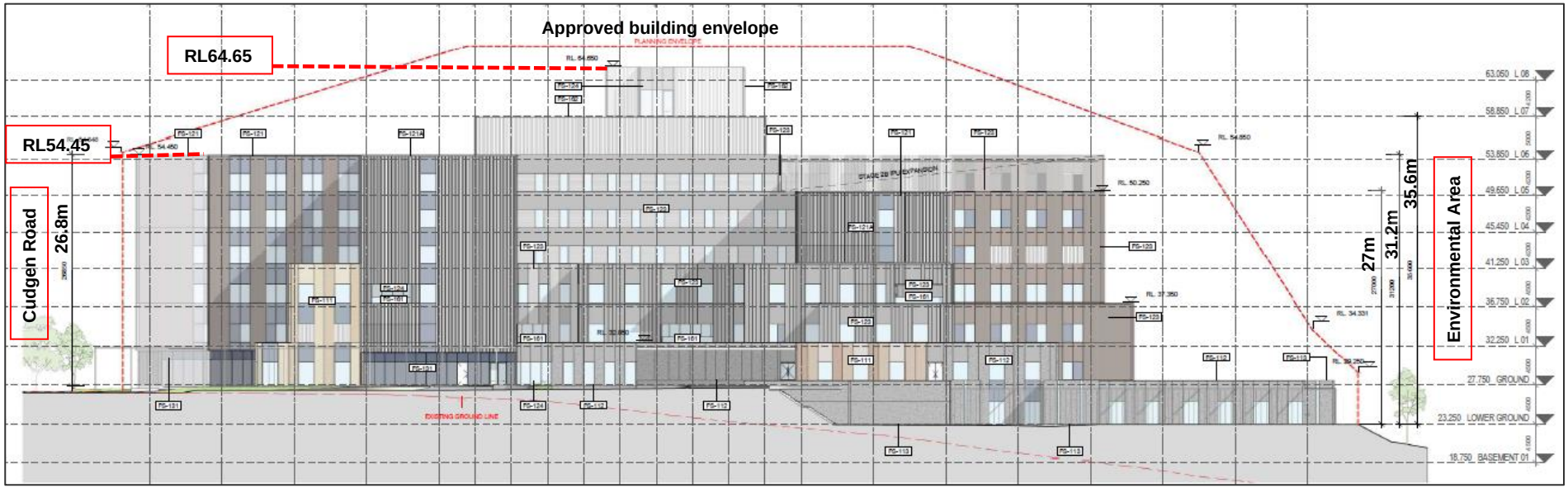


Figure 15 | New hospital building elevation fronting Cudgen Road (south) (Source: Applicant's RTS)

Multi-deck carpark

The proposed multi-deck carpark would be located to the west of the new hospital building, with a setback of 32.6m from the western boundary and 63.5m from Cudgen Road. The carpark is designed to accommodate staff and visitor car parking. Vehicular and pedestrian access for public would be provided from the eastern (adjoining the hospital) side of the structure. Staff would access the carpark from the western side via Access A.

The multi-deck carpark would accommodate ten carparking levels with a maximum building height of 29.2m, being equivalent to approximately six storeys of the hospital. It would appear as an eight-storey building from Cudgen Road.

A simple rectilinear built form is proposed for the structure, with limited façade modulation. Visual interest and articulation of façade is sought to be achieved by a variety of façade materials, which include masonry to the lower levels transitioning to lightweight metal cladding at the upper levels. The materials would incorporate variety of hues and textures including louvres and mesh finishes to complement the materials and finishes of the new hospital building (**Figures 16** and **17**).

Figure 16 | View of multi-deck carpark from the boulevard (Source: Applicant's RTS)

Figure 17 | Proposed multi-deck carpark as viewed from the south-western corner (Source: Applicant's EIS)

Health Hub

The 'Health Hub' is proposed to on the east of the site's entrance, within the front setback of the new hospital building. The Health Hub includes three low scale (one to two storey) buildings with an approximate setback of 9m from the Cudgen Road frontage. The Health Hub would be designed as part of the entrance plaza arrival space of the site.

Materials and finishes of the Health Hub building include steel framing with precast concrete panel infills in warm tones and floor to ceiling fenestration. Associated single storey pergola structures are also proposed for weather-proof pedestrian connections between the buildings (**Figures 18** to **20**).

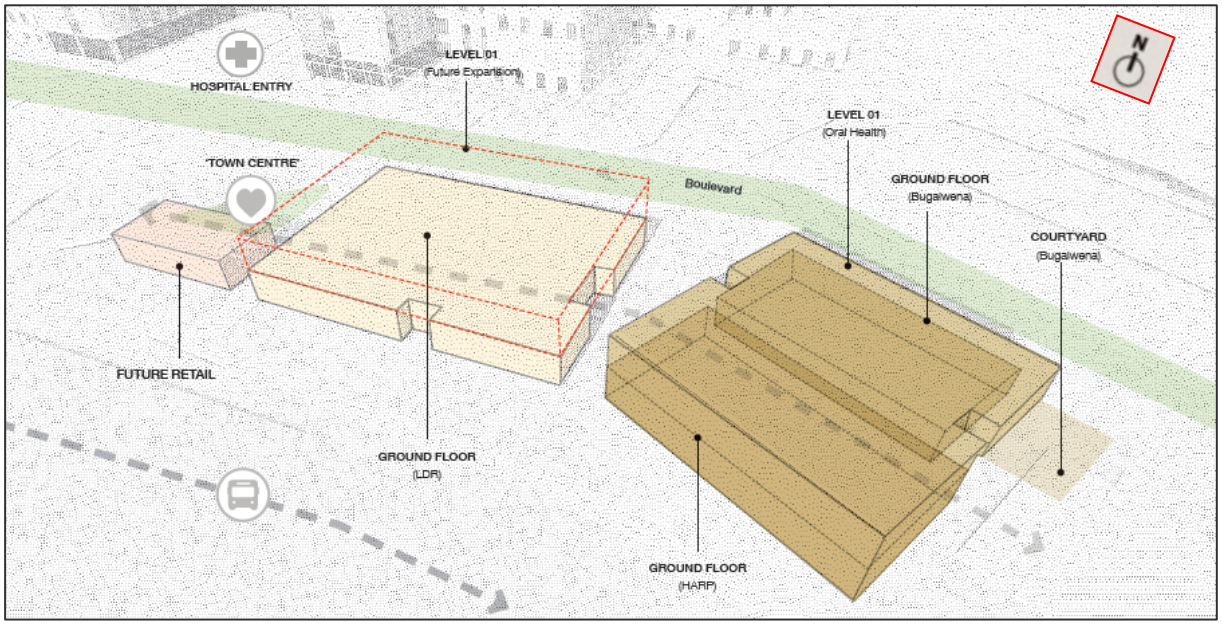


Figure 18 | Massing and location of Health Hub buildings (Source: Applicant's EIS)

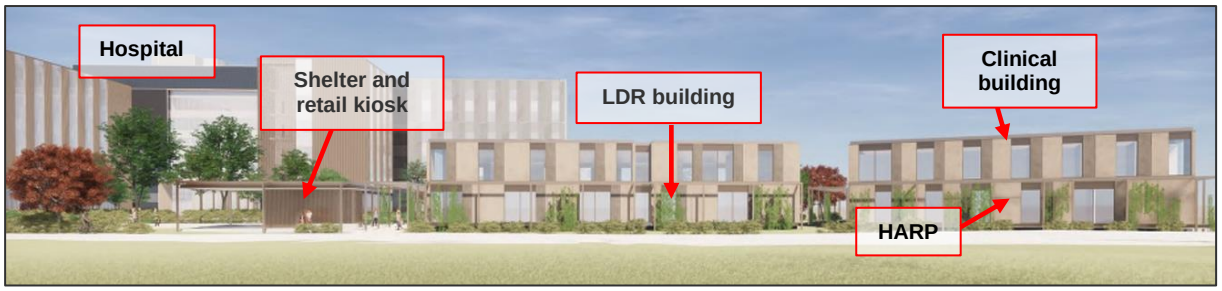


Figure 19 | Health Hub as viewed from Cudgen Road (Source: Applicant's EIS)

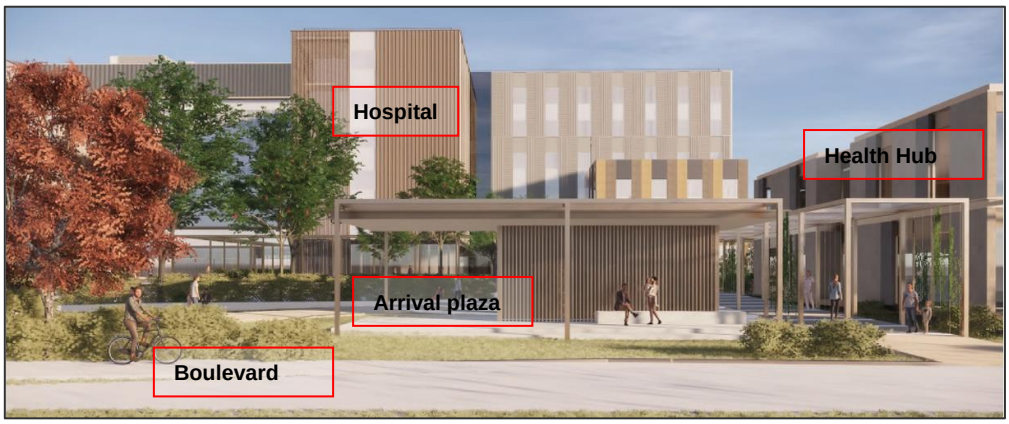


Figure 20 | Arrival plaza (Source: Applicant's EIS)

Tweed Valley Skills Centre

The temporary Tweed Valley Skills Centre (Skills Centre) would be a single storey building adjacent to the Health Hub. The building would provide the following services during Stage 2 construction phase:

- a 'Prototype and Simulation Suite' to inform the community of the detailed design of key clinical spaces for the hospital and serve as a simulation space for NSW TAFE.
- a 'Skills and Employment Hub' to act as a drop-in facility providing information on training and careers in relation to the proposal and tendering for subcontract work / supply contracts.

The Skills Centre would have a maximum building height of 8.4m, setback 14m from Cudgen Road.

The modular building is proposed to be removed from the site upon completion of the Stage 2 works, and the area landscaped as per the landscape design for the site. The floor plan and building elevation of the Skills Centre are provided in **Figures 21** and **22**.

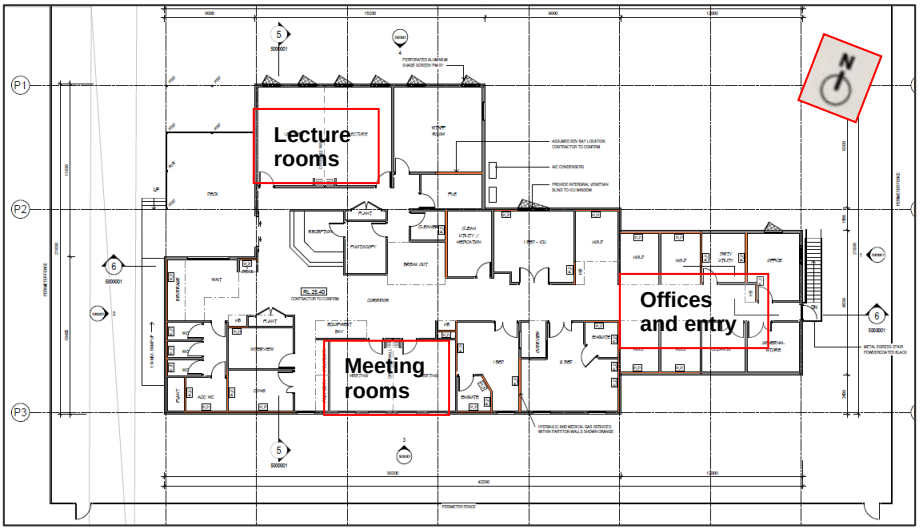


Figure 21 | Floor plan of Skills Centre (Source: Applicant's RTS)

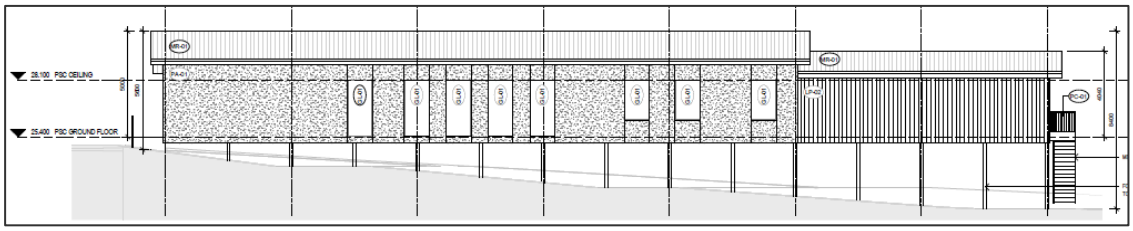


Figure 22 | Elevation fronting Cudgen Road (Source: Applicant's RTS)

2.2 Landscaping works

The Stage 2 application includes detailed site landscaping and public domain works, consistent with the approved Landscape Masterplan and zonal plan approved by the TVH Concept Proposal.

The landscape design principle is based on the irregular design of the farming plots in the locality, creating series of well-defined spaces, distinctly different in character and experience. The landscape masterplan also includes a well-connected pedestrian network within the site.

2.3 Site preparation and earthworks

Site preparation works, including bulk earthworks and establishment of site levels, were approved under Stage 1 of SSD-9575. Additional earthworks in Stage 2 are those required for general building and service / infrastructure installation, some amendments to the carpark areas, works to facilitate the multi-deck carpark, landscaping, road widening, intersection upgrades and bush regeneration.

2.4 Construction staging and timing

The construction of the hospital and the ancillary buildings are proposed to be undertaken in five separate substages (to be either delivered concurrently or separately) as listed in **Table 2**.

Table 2 | Construction Stages and delivery.

Construction Stage	Works proposed
Stage 2A	The new hospital building, complete with supporting roads, services infrastructure and landscaping.
Stage 2B	Incremental future expansion of the new hospital building. This stage (either in full or part) may be delivered concurrently with Stage 2A, subject to funding. Stage 2B includes: • construction of two additional 28 IPU (total 56 additional IPU beds). • expansion of the medical imaging department (350sqm). • expanded footprint for the pathology service (up to 500sqm). The elements of Stage 2B have been identified in the GFA calculation and the architectural plans. The two IPU are proposed to be delivered on Level 5 (rear facing north). The expansion of the pathology unit would occur at the lower ground level. The Stage 2B scope may be sub-divided into further sub-stages, depending on funding.
Stage 2C	The construction of the three buildings within the Health Hub. The first-floor expansion area to the LDR Building may be built concurrently with the other Health Hub buildings or as a separate sub-stage.
Stage 2D	Tweed Valley Skills Centre.
Stage 2E	Construction of the multi-deck carpark. A minimum of eight levels, supplying approximately 1078 parking spaces within the multi-deck carpark, would be constructed concurrently with the new hospital building and at-grade parking to ensure that a minimum of 1201 on-site spaces is available at the commencement of hospital operation (Year 2023 / 24). Supply of additional parking, and any associated additions to or opening of levels within the multi-deck carpark may be constructed or opened concurrently, or staged subject to further demand assessment and funding.

2.5 Hospital operation

Provision of beds and delivery timings

The Applicant advises the following in relation to the delivery of hospital beds and timings:

- 391 overnight and day only beds by 2023 (year of opening).
- 443 overnight and day only beds by 2033.
- 499 overnight and day only beds in 2033, including the additional 56 IPU beds in Stage 2B.

The following staff numbers are proposed to cater for the TVH:

- 1120 staff on-site during the day shift in 2023.
- 1300 staff on-site during the day shift in 2033.
- 1330 staff on-site during the day shift after 2033, associated with Stage 2B.

A minimum of 1201 car spaces would be provided on site in 2023.

The Skills Centre is proposed to include three teaching staff and up to 40 students.

Operating hours

The site would operate 24 hours on all days of the year.

Helicopter operations

A rooftop helipad is proposed for helicopters with primary north-south travel paths. The anticipated helicopter movements are estimated to be less than ten a month, and average six per month.

2.6 Approval History

On 11 June 2019, the Minister for Planning and Public Spaces (Minister) granted consent for the concept development application (SSD-9575) for the New TVH comprising:

- A Concept Proposal comprising:
  - the maximum building envelope for a nine-storey hospital with helipad and rooftop plant room.
  - the maximum building envelope for a building for support services (health hub).
  - the maximum gross floor area of 65,000sqm for the hospital and the health hub building on the site.
  - the site layout, internal roads, site access arrangements and car parking provisions.
  - a landscape masterplan, concept public domain treatments and stormwater strategy.
  - Tweed Coast Road and Cudgen Road intersection upgrade works.
- Concurrent Stage 1 early and enabling works comprising:
  - site preparation and bulk earthworks to establish site levels.
  - identification of the construction compound with temporary car parking areas, laydowns and internal roads.
  - new vehicular access points from Cudgen Road.
  - improvements to the roundabout at the intersection of Turnock Street and Cudgen Road.
  - utility augmentation and connection of permanent services for the future hospital.
  - construction of retaining walls.

- stormwater drainage works and soil and water management measures.
- site remediation works and piling works associated with the future hospital.

As discussed in **Section 1.2**, the Stage 1 works have commenced on the site. The development consent has been modified twice as detailed in **Table 3**.

Table 3 | Summary of Modifications

Mod No.	Summary of Modifications	Approval Authority	Type	Approval Date
MOD 1	Amend the extent of vegetation removal associated with the Stage 1 works.	Department	4.55(1A)	11/10/2019
MOD 2	Amend the Concept Proposal by introducing two additional building envelopes for a multi-deck carpark and the Tweed Valley Skills Centre, design alterations to the approved building envelopes / site layout, increase in the number of hospital beds to 499 plus 46 emergency treatment spaces and increase the gross floor area to 65,050sqm. Amend the Stage 1 works by modifying the approved volume of cut and fill on the site and increasing the number of truck movements temporarily for six weeks to remove the excess spoil from the site.	Department	4.55(2)	28/04/2020

3 Strategic context

3.1 Project Need and Justification

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 TVH Concept Proposal (SSD-9575) was lodged with the Department in response to this commitment by the NSW Government. The EIS for the Concept Proposal established the need for the proposed new TVH and included the following information:

- Northern NSW is one of the fastest growing regions of the state with population in Tweed and Byron LGAs expected to grow by 24 per cent by 2031, including children and an aging population.
- there are gaps between future demand for healthcare services and supply, accessibility and availability of services and therefore additional services are required.
- the construction of a new hospital was needed to response to the above gaps and growing needs. It was preferred over the refurbishment and expansion of the existing Tweed Hospital as:
    - the existing Tweed Hospital, located at Tweed Heads town centre is in the far north of the Tweed LGA,.
    - the Tweed Hospital site is located below the PMF level, affecting access during major flooding events and constraining future refurbishment of that building.
    - a number of access roads to the existing Tweed Hospital are impacted by flood and result in lack of connection between the hospital and the areas to the south of Tweed River.
    - being located within the town centre, there are capacity constraints with the existing Tweed hospital and expansion would require acquisition of adjoining site/s, significantly affecting the cost and timeframe for delivery of needed upgraded facilities.

The Applicant undertook a comprehensive site selection process to identify a suitable site for the construction of the new TVH. The site selection process and a summary of the assessment sites was provided in the Site Selection Summary Report published on the Tweed Valley Hospital Project website.

In its assessment of SSD-9575, the Department concurred with the Applicant and concluded that the construction of a new hospital was justified to deliver significant improvements to health services needed in the area.

The Stage 2 application proposes the detailed design, construction and operation of a new hospital and ancillary buildings, consistent with the TVH Concept Proposal.

3.2 Compliance with relevant strategic plans

While assessing TVH Concept Proposal (SSD-9575), the Department considered that the new TVH was consistent with the relevant strategic plans for the State,

The Stage 2 application, being constructed within the approved building footprint is also consistent with the:

- NSW State Priorities to deliver health infrastructure for an aging population, improve service levels in hospitals through the construction of new health facilities, and the creation of jobs during both the construction and operational phases of the development.
- North Coast Regional Plan 2036 (NCRP) Direction 6, relating to healthcare and education sectors continuing to deliver important services and sustain employment growth.
- State Infrastructure Strategy 2018 – 2038 Building the Momentum, as it provides direct investment into the improvement of health infrastructure and enable the delivery of modern health infrastructure that would support improved health outcomes for the people of regional NSW.

The proposal would provide direct investment in the region supporting 771 construction jobs per year over 3.5 years, and up to 208 new operational jobs with a total of 2055 operational jobs.

At the time of assessment of SSD-9575, the Department noted that the proposed development of a hospital on the site would not be fully consistent with Directions 11 and 12 of the NCRP, which contain actions to protect and enhance productive agricultural land and grow agribusiness in the region. The appropriateness of the use of agricultural land for the purpose of a “health services facility” was addressed through the rezoning of the land from RU1 to SP2 (as discussed in **Section 1.2**). The Stage 2 application is proposed to be located on land zoned for “health services facility” and comprises a critical public infrastructure, consistent with the previous approvals on the site.

4 Statutory Context

4.1 State significant development

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

In accordance with section 4.5 of the EP&A Act, the Minister is the consent authority. In accordance with the Minister's delegation on 9 March 2020 to determine SSD applications, the Executive Director, Infrastructure Assessments can determine this application as:

- the relevant Council has not made an objection.
- there are less than 50 public submissions in the nature of objection.
- a political disclosure statement has not been made.

4.2 Permissibility

The site is predominantly zoned SP2 Infrastructure (Health Services Facility) under the TLEP 2014. The northern part is zoned DM Deferred Matter under TLEP 2014 (**Figure 23**).

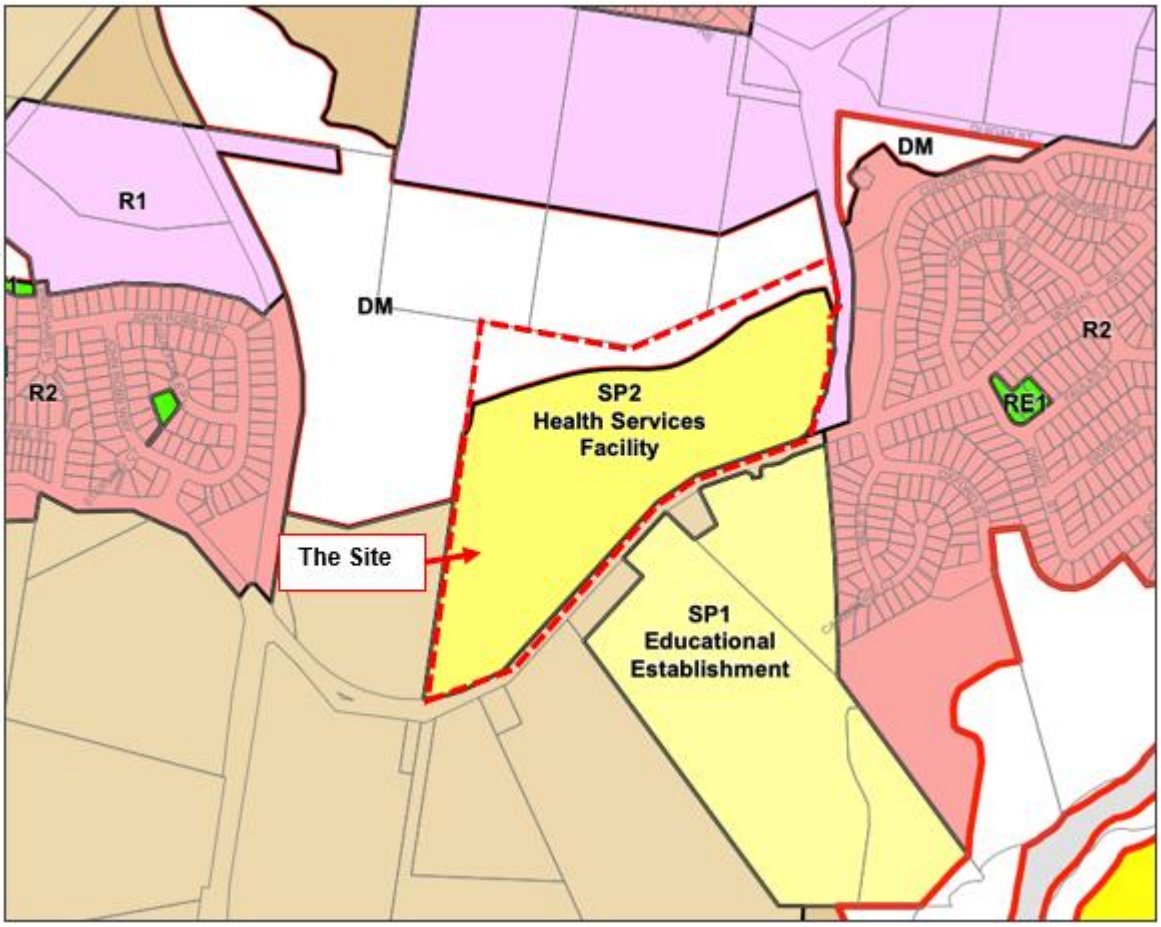


Figure 23 | Site zoning map (Source: TLEP 2014)

The proposed development is located almost wholly within the SP2 zone and is permissible with development consent.

Some limited environmental management works associated with rehabilitation of the farm dam would also encroach into the DM area, to which the TLEP 2000 applies. The works would be permissible under TLEP 2000 with consent. Therefore, the Minister, or a delegate may determine the carrying out of the development.

4.3 Other approvals

Under section 4.41 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 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 (**Appendix C**).

4.4 Mandatory Matters for Consideration

Environmental planning instruments

Under section 4.15 of the EP&A Act, the consent authority is required to take into consideration any environmental planning instrument (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 considered 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 consistent with the requirements of the EPIs.

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 4**.

Table 4 | Response to the objects of section 1.3 of the EP&A Act

Aspect	Description
a) to promote the social and economic welfare of the community and a better environment by the proper management, development	The proposal involves the construction of new health facilities on land zoned for health services and would provide for the current and future needs of the community.

	and conservation of the State's natural and other resources,	The development would not negatively impact on the economic welfare of the community, or the natural environment.
b)	to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,	The proposal includes measures to deliver ecologically sustainable development (ESD) (see discussion below).
c)	to promote the orderly and economic use and development of land,	The proposal is an orderly and economic use of the land as it provides for the delivery of a new hospital on land previously determined as appropriate for the proposed use and zoned accordingly, and by delivering significant economic benefits to the region.
d)	to promote the delivery and maintenance of affordable housing,	Not applicable.
e)	to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,	The proposal would protect the environment and would not adversely impact on biodiversity values (See **Section 4.5**).
f)	to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),	The proposal responds appropriately to the heritage values on the site and surroundings. The proposal would not impact on Aboriginal cultural heritage associated with the area (See **Section 6**).
g)	to promote good design and amenity of the built environment,	The proposal promotes good design consistent with the design principles established by the Concept Approval to improve the amenity of the built environment (See **Section 6.1**).
h)	to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants,	The proposal would promote good construction and maintenance of buildings, subject to the implementation of recommended conditions.
i)	to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,	The Department publicly exhibited the proposal, consulted with Council and other public authorities and considered their responses (**Sections 5** and **6**).

j) to provide increased opportunity for community participation in environmental planning and assessment.	The Department publicly exhibited the proposal, which included notifying adjoining landowners, placing a notice in newspapers and displaying the proposal on the Department's website and at Tweed Shire Council during the exhibition period (See **Section 5**).

Ecologically sustainable development (ESD)

The EP&A Act adopts the definition of 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 development proposes ESD initiatives and sustainability measures, including:

- energy and water efficient equipment, fittings, fixtures, and appliances.
- rainwater re-use on site for non-potable purposes.
- consideration given to type and quality of materials (including use of low embodied energy and recycled content, low Volatile Organic Compounds).
- passive design strategies where feasible, such as orientation, natural daylight access, external shading, thermal mass, appropriate glazing selection, thermal efficiency and building fabric.
- specification of resilient finishes for longevity.
- waste management, reduction and recycling.
- prioritising locally sourced materials, efficient selection of materials to limit off-cut wastage during construction, and reuse of materials on-site.
- efficient building management systems and equipment controls, including lighting and air-handling.
- water sensitive urban design measures (WSUD) in stormwater management infrastructure.
- reduced quantity of surface parking to reduce heat island effect.
- green/sustainable transport plan.
- reviewing opportunities to work with the Australian Renewable Energy Agency.

During the EIS exhibition, Tweed Shire Council raised concerns regarding the proposed built form and recommended that screened or layered elevations should be designed to reduce the heat load on the building elevations.

In response, the Applicant's RTS reiterated that the building would adopt passive heating and cooling design principles to reduce its reliance on mechanical heating, ventilation and air-conditioning. The building form and varying orientation of patient rooms would assist in reducing excessive solar ingress to the impacted rooms. The extent of solar ingress to IPU rooms is limited, due to the limited glazing to solid wall percentage (<25 per cent). Solar gains would be managed with the adoption of high-performance double-glazing units. Glare management would be addressed through performance characteristics of the glazing and would be complemented by adjustable room blinds, that cater for

individual comfort. Therefore, further solar shading through screened elevations is not considered necessary.

The Applicant's ESD report also includes an ESD Matrix (or framework) to reflect an equivalent 4-star Green Star Design and As-Built pathway and the relevant initiatives considered to achieve the 4-star target rating. The Applicant has advised that this pathway would be tested and refined throughout the design and construction phase of the project.

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 as described in Section 5.8 and Appendix L of the Applicant's 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 proposed sustainability initiatives will encourage ESD, in accordance with the objects of the EP&A Act. The Department has recommended a condition requiring the Applicant to demonstrate that ESD initiatives have been implemented in the final design plan and that a minimum 4-Star Green Star or equivalent certification can be obtained.

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.

Planning Secretary's Environmental Assessment Requirements

The EIS is compliant with the Planning Secretary's Environmental Assessment Requirements (SEARs) and is sufficient to enable an adequate consideration and assessment of the proposal for determination purposes.

Section 4.15(1) matters for consideration

Table 5 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 of 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 5 | Section 4.15(1) matters for consideration

Aspect	Description
(a)(i) any environmental planning instrument	Satisfactorily complies. The Department's consideration of the relevant EPIs is provided in **Appendix B**.

(a)(ii) any proposed instrument	Satisfactorily complies. The Department's consideration of 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. Notwithstanding, consideration has been given to relevant DCPs at **Appendix B**.
(a)(iiia) any planning agreement	Not applicable.
(a)(iv) the regulations *Refer Division 8 of the EP&A Regulation*	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 - refer to **Section 6**.
(c) the suitability of the site for the development	The site is suitable for the development as discussed in **Sections 3** and **6**.
(d) any submissions	Consideration has been given to the submissions received during the exhibition period as discussed in **Sections 5** and **6**.
(e) the public interest	Details are discussed in **Section 6**.

4.5 Biodiversity Development Assessment Report

Under section 7.9(2) of the *Biodiversity Conservation Act 2016* (BC Act), SSD applications are "to be accompanied by a biodiversity development assessment report (BDAR) unless the Planning Agency Head and the Environment Agency Head determine that the proposed development is not likely to have any significant impact on biodiversity values".

To address the biodiversity impacts associated with the Stage 2 works, a BDAR has been prepared in accordance with the Biodiversity Assessment Method (OEH 2017) (BAM) complying with the requirements of the BC Act. The Stage 2 BDAR is a revision of the previously endorsed Stage 1 BDAR, updated to include the detailed design plans and an assessment of any potential additional biodiversity impacts for the development.

The Stage 2 BDAR includes all the information pertaining specifically to Stage 1 works, to demonstrate consistency with the endorsed Stage 1 BDAR and the Matters of National Environmental Significance (MNES) report as per conditions of consent of SSD-9575.

The BDAR and Department's assessment of the biodiversity impacts of the proposal are considered in **Section 6.4**. The Departments assessment concludes that biodiversity impacts would be satisfactory, subject to implementation of relevant mitigation measures and recommended conditions of consent.

4.6 Commonwealth matters

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 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 submitted a MNES report with the TVH Concept Proposal which concluded that a referral to the Commonwealth under the EPBC Act is not required. The most relevant MNES matter identified in the application related to the Mitchell's Rainforest Snail (*Thersites mitchellae*). An expert assessment was submitted during the TVH Concept Proposal and a further investigation report was submitted with the Stage 2 application. The assessment confirmed that the Stage 2 works would result in no significant impact to Mitchell's Rainforest Snail.

Following from this assessment and the commitments in the TVH Concept Proposal, the submitted Biodiversity Management Plan (BMP) includes a range of management measures, including weed control to enhance the environmental area to the north, the habitat of the snail. It also included measures to regenerate the rainforest vegetation within the site in accordance with the Vegetation Management Plan. The BMP also includes measures to restore and regenerate the Koala *Phascolarctos cinereus* habitat, being the other identified MNES matter for the site. The details of koala habitat are discussed in **Section 6.4**.

During the EIS exhibition, one submission indicated that the Stage 2 application included insufficient assessment of Mitchell's Rainforest Snail. In response, the Applicant advised that the MNES matters have been adequately assessed in the Stage 1 BDAR. Energy, Environment and Science Group (EESG) of the Department have supported the proposed measures in the BMP.

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. Notwithstanding, the Department supports the proposed measures to protect and restore the habitat of the two Commonwealth listed threatened species.

5 Engagement

5.1 Department's engagement

In accordance with Schedule 1 of the EP&A Act, the Department publicly exhibited the application from 10 October 2019 until 8 November 2019 (30 days). The application was exhibited at the Department and on its website, at Tweed Shire Council's office and at Kingscliff Library.

The Department placed a public exhibition notice in the Tweed Valley Weekly on 10 October 2019, Tweed Daily News and Byron Shire Echo on 9 October 2019, and notified adjoining landholders and relevant public authorities in writing. The Department representatives visited the site 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 at **Appendix C.**

The Department received a total of 25 submissions, including 11 from public authorities and 12 individual public submissions (including three objections) and two submissions from community / special interest groups. A summary of the issues raised in the submissions is provided below and copies of the submissions may be viewed at **Appendix A**.

Following the close of exhibition, the Department received one correspondence objecting to the proposal.

5.2 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 did not object to the proposal but provided the following comments: *Water and sewer infrastructure* • further information is needed to address inconsistencies, errors and gaps in the information. • water demand loads and storage are underestimated and need to be updated. *Traffic* • no concerns are raised in relation to traffic generation or intersection upgrades. *Parking*

- paid parking within the site is not supported as it may result in adverse impacts for surrounding streets and is contrary to previous advice from NSW Government.

Stormwater management

- clarification is sought in relation to recommendations regarding hydrology assessment and stormwater management measures.
- further information is required to confirm the following:
  - that the development would not result in a worsening of stormwater discharges to adjacent private land.
  - the validation of the data for the DRAINs and MUSIC software models.
- an easement is required for the stormwater which drains through the site via an open drain along the western boundary.

Urban design

- a wholistic hospital site master plan considering the future stages should be prepared.
- the design should include visual and physical connections between the building and the surrounding landscape, a legible east-west axis for pedestrian circulation; consideration for a skybridge link between the carpark and hospital; opportunities for courtyards and light wells; and relocation of plant rooms that occupy locations with views / sunlight.
- the integrity of materials / finishes should be maintained throughout the process.
- architectural forms and finishes should reflect the Kingscliff coastal subtropical context including a greater articulation and diversity in materials, stronger horizontal composition, integrated landscape terraces and large balcony areas.
- photomontages should include location photos in the background.
- a photomontage of the western approach should be included.
- additional public domain areas should be included as outdoor amenity areas of retreat and relaxation including covered pathways linking carparks and the hospital.
- the internal pedestrian paths and cycleways should extend across the Cudgen Road and Turnock Street frontages to connect to Council's broader pathway network.
- green elements should be included in the building design, on the vertical planes, to soften the appearance of the development and align with the subtropical character.

Visual impact assessment (VIA)

- the VIA should be updated to provide:
  - detailed consideration of the key landscape character elements of each viewing location and analysis of the visual impact on those elements from each viewpoint.
  - consideration of light pollution and night-time visual impact.
  - consideration of the visual impact on views from intersections on Kingscliff Hill where vehicles are stopped at give way or stop signs and have full view of the development.

Heritage

- plans should be revised to enable retention of an existing dry-stone wall on the site, and any new retaining wall, if required, be constructed behind the retained wall.
- the local South Sea Islander Community should be consulted regarding the development and receive copies of all heritage assessments and archival recordings.

Agricultural offsets

- the requirements for agricultural offsets required by the consent for SSD-9575 have not been adequately addressed due to the following reasons:

- no work program or commitment including the development of a local procurement strategy has been included.
- no strategy or plan of implementation of the offset measures has been specified.
- adequate consultation has not occurred with local farmers to discuss the offset measures.
- a commitment to review and change any relevant State purchasing policies to accommodate this new supply chain have not been included
- measures to improve the production capacity of underutilised land in the Cudgen has not been considered or committed to.

Koala food trees

- the Koala food trees have not been clearly identified in the landscape plans.

Additionally, Council recommended the following:

- a condition requiring the Applicant to enter into an agreement with Council in relation to water services provision and the developer / Applicant to pay water and wastewater headwork contributions, or alternatively, a high consumption usage charge.
- measures in relation to location of pick-up / drop-off zones, associated time restrictions and kerb ramps, provision and location of accessible parking and access for buses.
- a condition requiring the capture and re-use of rainwater.
- assessment to ensure the potential for downstream stormwater nuisance has been reasonably mitigated, noting annual flow from the site will increase by over 50 per cent.
- a condition requiring the stormwater treatment drain to be designed and constructed in accordance with the relevant Water by Design Guidelines.
- consultation with affected viewers to identify their preferences for visual elements including:
  - information sessions with affected landholders and community.
  - confirming the important viewpoints and validation of their viewsheds.
  - capturing community values about scenic qualities (like / dislikes of the viewers).
  - provision of photomontages at each viewing point to identify the potential impacts.
- conditions requiring air quality monitoring systems installed for Stage 2 construction.
- the design of the sewer pumping station to comply with the relevant water services guidelines.
- the sewer pump unit and rising mains be owned, maintained / operated by the owner
- assessment to ensure that the firefighting storage on the site is sufficient.
- conditions in relation to construction management, drainage, water cooling systems, sewage management, mosquito management, food premises, and road upgrades.

Transport for NSW (TfNSW)

TfNSW recommended the following conditions:

- the design of the bus stops on Cudgen Road to comply with relevant guidelines.
- details of pedestrian access to be provided in the design plan.
- an independent Road Safety Audit should be conducted.
- consultation with local bus operator be undertaken in relation to changes to traffic conditions for the construction phase and development of the final Green Travel Plan.

TfNSW (Roads and Maritime Services) (TfNSW (RMS))

TfNSW (RMS) requested the following information:

- a new traffic impact assessment including the assessment methodology.
- explanation of the changes between the traffic modelling used in Stage 1 and Stage 2, for a full understanding of the consequential impact on the Tweed Coast / Cudgen Road intersection, which was not fully addressed at the TVH Concept Proposal stage.
- the validation of some of the data used in the traffic assessment.
- discussion on alternative solutions to manage the traffic generation due to the hospital, given that the timing of delivery of the broader road infrastructure by Council is unclear.
- updated plans for the Tweed Coast Road / Cudgen Road intersection including dimensions, the additional lengthening of the Tweed Coast Road north-bound right-turn bay and left-turn deceleration lanes on Cudgen Road.
- plans for the proposed traffic signals at the Hospital entrance.
- consideration of solutions to ensure that the location of the main access, bus bays and alternative ingress do not compromise the ability for future improvements.
- additional documentation to address issues regarding intersection design including:
    - queue lengths on Cudgen Road for left and right turns and traffic light phasing.
    - length of left turn lanes at Tweed Coast Road / Cudgen Road and three access points to the hospital to cater for deceleration and queuing at pedestrian crossings (minimum 55m).
    - redesign / relocation of bus bays potential to address internal road conflict between exiting and queued merging traffic.

TfNSW (RMS) also recommended the following:

- the Department should be satisfied that adequate road infrastructure is in place with each stage of the development to adequately cater for the generated traffic and ensure safe pedestrian and vehicular movements.
- all regulatory signs, controls and traffic signal plans for internal and external roads should be referred to Tweed Shire Council's Traffic Committee for a recommendation.
- impacts of the merge / diverge movements at the western approach right-turn lane of the Turnock Street roundabout on the efficient / safe operations of the eastern approach lane shared with NSW TAFE should be considered.
- an updated Green Travel Plan should be provided.

Energy, Environment and Science Group of the Department (EESG)

EESG provided the following comments and recommendations:

Stormwater

- measures to further improve the stormwater volumes entering the sediment basins, particularly for the frequent minor rainfall events should be considered.
- recommendations in the Hydrology Assessment Report to improve stormwater discharge, should be incorporated in the engineering designs.
- maintenance measures for the bioretention systems should be included in the operational procedures plan.
- emergency procedures to prevent contamination spills should be required.

Biodiversity management

- The Biodiversity Management Plan (BMP) should be amended to address translocation of a plant species, remove recommendations in relation to introduction of two species, and define areas of environmental concerns in relation to pet restrictions.
- details on monitoring and reporting on the Mitchell's snail should be provided.
- consent conditions should require implementation of the threatened species monitoring program and adoption of the detailed procedure for fauna surveys per the BMP.

Dam infill

- dam infill operations should be staged to allow for adequate salvage of animals.
- trapping and relocation of turtles by professional wildlife rescuers should be ensured.
- use of turtle / yabby nets to capture animals missed by the electro fish / gill net operations, should be ensured.
- systematic sweeps should be used to handle the decreasing sections of remaining water as the dam is incrementally infilled.

Landscaping

- the identified mitigation measures in the TVH Concept Proposal should be incorporated in the Stage 2 landscaping including:
  - more stepping-stone habitats and raingardens.
  - expanded landscaped areas in south-west corner and along perimeter road.
  - improve grassland habitat in certain landscape zones.
  - koala food trees (numbers / details) at the south-west corner and northern boundary.
  - further advice or improvements on the limited plantings in the bioretention areas and the reuse of rocks to create habitat for ground dwelling species.

Koala management

- recommendations should be incorporated regarding provision of advisory signage, construction vehicle speeds, restrictions on fencing, and provision of a wildlife crossing to the north-east of the site.

Aviation operations

- The aviation report should be revised to consider other potential locations for flying fox camps in consultation with Council ad relevant organizations.
- An Aviation Operations Manual should be prepared including measures to reduce bird strike, paths to minimise impacts on sensitive environments and incident register.

E2 zoning for retained vegetation

- Information on rezoning of the native vegetation on the site to E2 should be provided.

Heritage NSW

Heritage NSW advised that as the site is not listed on the State Heritage Register (SHR), nor is it in the vicinity of any SHR items. It does not contain any known historical archaeological sites. Therefore, no further heritage comments are required.

Department of Primary Industries (DPI)

DPI provided the following comments:

- no agricultural offsets are committed to in the submitted Offset Plan, as required by the consent for the TVH Concept Proposal.
- the offset strategies should be updated to discuss the results of community consultation and identify agricultural offsets or an implementation plan for offsets, including key performance indicators, ongoing monitoring and validation by the local agricultural industry.
- the Offset Plan also does not include a local food procurement strategy.
- previous concerns over the impact of the hospital traffic on agricultural vehicle movements in the locality have not been addressed. Further consultation with surrounding landowners should be undertaken in this regard to ascertain the frequency of movements and monitor the associated traffic impacts.
- the submitted Agricultural Offset Plan should include consideration for an underpass or alternative measure to support agricultural machinery movements.

Civil Aviation Safety Authority (CASA)

- CASA advised previous comments on the TVH Concept Proposal remain applicable.

Airservices Australia

- Airservices Australia advised that a maximum height up to RL 67.1 would not affect the airspace procedures associated with Gold Coast Airport. The previous comments from the authority on the TVH Concept Proposal are applicable to the Stage 2 application.

NSW Rural Fire Service (RFS)

- The RFS recommended the imposition of standard conditions in relation to bushfire safety, compliance with the TVH Concept Proposal, provision and management of APZs, compliance with the relevant building construction standards, services, landscaping requirements, and a bushfire evacuation / emergency plan for the occupants.

NSW Environment Protection Authority (EPA)

- The EPA advised it is satisfied with the management and mitigation measures relating to noise detailed in the Stage 2 application, and no further comments are needed.

DPI Water

- DPI Water had no specific comments regarding the application.

5.3 Community submissions

Summary of submissions from community / special interest groups

Two submissions (one comment and one support) from community / special interest groups were received during the EIS exhibition. The submissions provided the following comments.

- the new hospital should involve stronger public transport integration, intersection upgrades and pedestrian connections between the site and the external road network.
- efficiency of the Cudgen Road / Tweed Coast Road network should be assessed.
- the buildings should step down to seamlessly connect with the surroundings and the proposed multi-deck carpark should be discouraged.
- the stormwater from this site should not result in any increase of flood levels in the wetland even during minor storms and cause any stormwater nuisance to adjoining properties.
- the hospital site should provide shared parking facilities for people visiting a future park on the adjoining allotment to the west.
- a pathway or bike track should connect the hospital site with the adjoining park.
- Tweed Coast Road / Cudgen Road intersection upgrade should facilitate U-turn from the north.
- details of student and staff accommodation within the site should be provided.

Public submissions

Twelve individual public submissions were received during EIS exhibition, including three objections, six comments and three letters of support. The key issues raised in the submissions include:

- concerns regarding development of the site as a hospital including the site selection process, rezoning of the site and the approval of the TVH Concept Proposal.
- traffic impacts due to the increased beds and intersection upgrades.
- the quantity and cost of on-site parking and potential impacts t surrounding streets.
- visual impacts due to scale and lack of screening.
- potential for cross-utilisation of the carpark to provide parking for the wider area.
- noise impacts.
- relationship of the hospital with adjoining land to the west.
- impacts of the development on the local farmers and businesses.
- adequacy of agricultural offsets.
- stormwater impacts.
- biodiversity impacts.
- construction impacts.

Correspondence received after the close of exhibition period raised the following additional issues:

- the CIV of the proposal should be amended to reflect the inclusion of the carpark.
- limited community consultation has been undertaken after approval of TVH Concept Proposal.
- the development would impact on the agricultural productivity of the land.
- the Site Audit Statement and Site Audit Report do not include any investigations for arsenic.
- the stormwater assessment does not demonstrate that the development would not impact on the adjoining coastal wetlands.

- inadequate assessment of impacts on Mitchell's Rainforest Snail and koalas have been conducted.
- inadequate assessment of light pollution has been conducted.

5.4 Response to Submissions

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 17 March 2020, the Applicant provided a Response to Submissions (RTS) (**Appendix A**) on the issues raised during the exhibition of the proposal. The RTS included the following amendments:

- minor amendment to bioretention basin design.
- minor adjustments to the location and configuration of sewer pump station.
- removal of the community garden from landscape plans.
- additional details in relation to bus stops.

Additional information was also provided including an updated Visual Impact Assessment Report, updated Hydrology Report, updated Agricultural Offset Plan and updated Aviation Report and other technical reports to address issues raised during the EIS exhibition.

The RTS was made publicly available on the Department website and was referred to the relevant public authorities. An additional six submissions were received from public authorities, including Council, and additional correspondence from a previous submitter. A summary of the issues raised in the submissions is provided at **Table 7.**

Table 7 | Summary of public authority submissions to the RTS

Council
Council provided the following comments: • the Applicant has not provided a satisfactory response to earlier concerns raised regarding site masterplan, visual impact improvements and addition of green walls. • the built form and the massing are not supported due to its relationship with the agricultural context surrounding the site, and the building mass being a monolith. • a number of matters regarding built form and urban design which are relevant to the Stage 2 application rather than this modification application. • the visual impact assessment does not consider the agricultural visual landscape. • proposed works for new road upgrades may require further assessment of Aboriginal Cultural Heritage impacts. • insufficient information has been provided to address previous concerns raised by Council regarding payment of monetary contributions for water and sewer connections in relation to the development. Council recommended that:

- a holistic masterplan be developed for the site in consultation with Council and the community.
- rooftop gardens and landscape design integration into the external spaces and external elevations of the building should be considered including green walls.
- a shared path for pedestrians and cyclists should be built along the Cudgen Road and Turnock Street frontages of the site.
- an unexpected finds protocol for Aboriginal cultural heritage assessments should be developed for the external roadworks.
- a separate application should be submitted to Council under section 138 of the *Roads Act 1993* seeking approval for works within the road reserves / site access.
- monetary contributions to Council in relation to sewage management, trade waste, water and wastewater should be resolved and paid, where necessary.

TfNSW (RMS)

TfNSW (RMS) reviewed the RTS and did not raise any concerns in relation to modelling or intersection design, and provided the following additional comments:

- the proposed road upgrades would cater for the hospital traffic in the year of opening.
- in the medium-to-long term, upgrades to Tweed Coast Road, delivery of additional east-west secondary connections to Kingscliff would be needed to support the operation of the hospital.
- necessary infrastructure should be funded by relevant public authorities and delivered within appropriate timeframes to meet the needs of the hospital development.
- further approval from TfNSW for the installation of the traffic control signals at the two intersections, with associated requirements in relation to TfNSW specifications, design criteria and requirements for a of Works Authorisation Deed. TfNSW (RMS) also requires evidence of consultation with NSW Ambulance service to confirm the proposed works meet the needs of emergency service vehicles.

EESG

EESG advised that the RTS addressed the majority of the issues raised during the EIS exhibition and recommended the submission of an updated BMP including all commitments from the Applicant made as part of the Stage 2 application.

EESG also requested that the land accommodating the existing vegetation on the northern boundary of the site be zoned as E2 Environmental Conservation, and that the Applicant and Council be involved in the process.

DPI

DPI commented that the revised Agricultural Offset Plan did not include a complete list of commitments / program of physical works needed to offset agricultural impacts. DPI recommended that:

- a satisfactory Agricultural Offset Plan with a detailed implementation program be submitted prior to the occupation of the hospital.
- progression of development of a local food procurement strategy / mitigation of impacts to agricultural vehicle movements be ensured by the Applicant.

RFS

The RFS reiterated recommended standard conditions in relation to bushfire safety.

5.5 Supplementation Response to Submissions

Following submission of the RTS, the Department raised further concerns regarding the traffic assessment and requested information regarding the impacts of the operational road traffic noise on the nearest resident at Cudgen Road.

The Department conducted a preliminary peer-review of the proposed drainage works and the impacts on the hydrology of the adjoining coastal wetlands (advice from Alluvium Consulting in **Appendix D**). Following the peer-review, the Department sought clarification regarding the hydrology assessment.

One additional correspondence was also received from a previous submitter, which identified that the impacts of the development on the downstream properties immediately adjoining the site had not been considered in the RTS. The correspondence indicated that the adjoining site is proposed to be developed as a recreational park in the future.

In response to the submissions and Department's requests, the Applicant submitted supplementary RTS (SRTS) on 26 March 2020 and 23 April 2020. This included:

- responses to the concerns raised in the additional community submission.
- additional hydrology assessment considering the impacts of seasonal flows from the site on to the coastal wetlands.
- updated infrastructure management plan.
- information regarding water and sewer connections and contributions.
- updated Agricultural Offset Plan.
- addendum to the noise and vibration assessment report.

The Department received two additional correspondence following the submission of the SRTS, which raised the following additional issues:

- inadequacies of the hydrology assessment and the DRAINS model.
- impacts of the lack of groundwater recharge on Acid Sulfate Soils downstream.
- inadequate assessment of the impacts of relocating the existing hospital at Tweed Heads.
- impacts of the retaining walls to the north of the site with a combined height of 10m.

6 Assessment

The Department has considered the EIS, the issues raised in submissions and additional correspondence, the Applicant's RTS and SRTS, in its assessment of the proposal. The Department considers the key issues associated with the proposal are:

- built form and urban design.
- landscaping.
- visual impact.
- biodiversity impacts and coastal wetlands.
- traffic and transport.
- agricultural offsets.
- noise impacts.

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

6.1 Built form and urban design

Consistency with the TVH Concept Proposal

The TVH Concept Proposal (as modified) established the maximum building envelope of an up to nine-storey hospital building with a helipad and plant room on the rooftop, the Health Hub, the multi-deck carpark, a temporary Skills Centre and a site masterplan. The Department's assessment of the TVH Concept Proposal found that:

- building envelopes are appropriately located to minimise impacts on the immediate public domain, distant urban areas to the north and west and respond to the constraints of the site.
- the development area could suitably accommodate the built forms, vehicular areas, public gathering spaces and well-connected pedestrian networks.
- the significant vegetation to the north of the site (within the coastal wetlands) would be retained.

The Stage 2 application is generally consistent with the TVH Concept Proposal in terms of the:

- overall site layout, given that the building locations and boundary setbacks, carpark locations, internal road layout, site access and landscape areas, buffer zones and landscape arrangements are consistent with the approved layout (**Figure 7**).
- overall building mass, given that the:
  - proposal (new hospital and health hub) would result in a maximum GFA of 65,050sqm.
  - topmost level of the hospital building located at RL 64.65, being within the approved height limit of RL 67.1.
  - proposed buildings fit comfortably within the approved building envelopes.
  - topmost level of the multi-deck carpark is located at RL44.65, being within the stipulated height limit of RL 47.45.

A comparison of the approved envelope and proposed built form are provided in **Figures 14** - **15** and **24** to **26**.

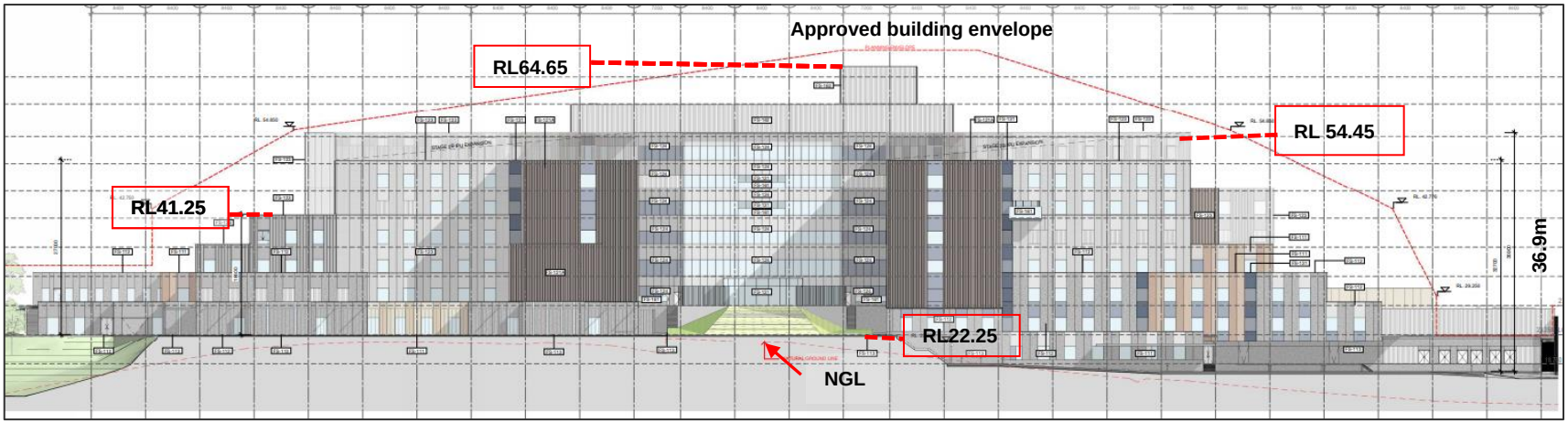


Figure 24 | Proposed western elevation of the Multideck carpark with approved Concept Plan envelope shown in red (Source: Applicant's RTS)

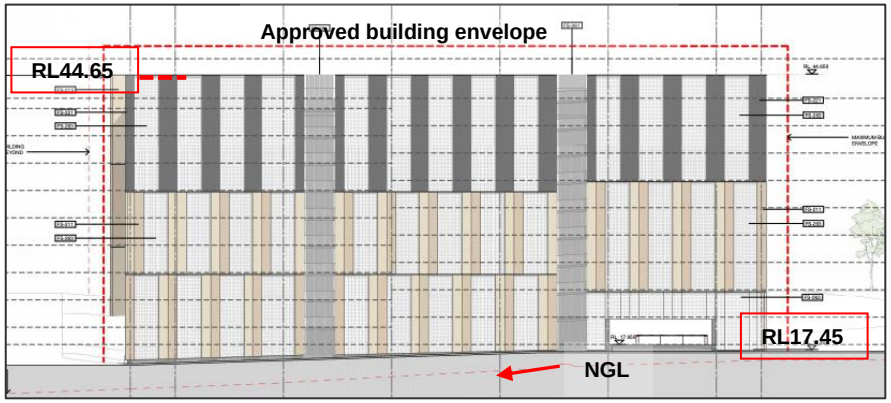


Figure 25 | Proposed western elevation of the Multideck carpark (Source: Applicant's RTS)

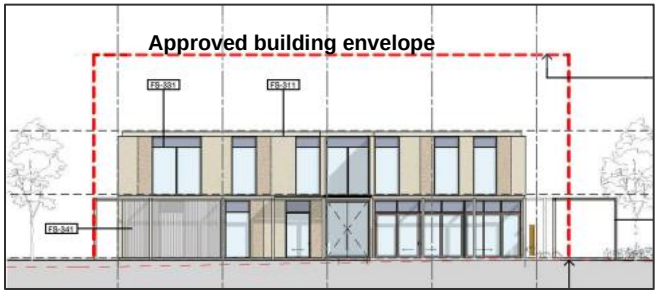


Figure 26 | Proposed eastern elevation of the Health Hub (Source: Applicant's RTS)

During EIS exhibition, Council raised concerns that the site plan does not include an overall master plan with consideration to future development stages on the site, ultimate road and pedestrian networks, public domain and landscaping.

The Applicant's RTS did not provide any specific response in this regard.

The Department considers that master planning was considered by the TVH Concept Proposal, which included details of potential future expansion strategies such as allied residential, educational, mixed use, private medical consulting rooms to the east and west of the main hospital footprint. The conditions of consent for the TVH Concept Proposal do not require the Applicant to further consider future expansion possibilities in Stage 2. Thus, this is outside the scope of the Stage 2 application.

Notwithstanding, the Department notes that the new hospital building includes opportunities for further expansion of the Health Hub (first floor), future expansion on the upper levels at the rear (to include 56 IPU beds) and other lower level treatment areas. The Stage 2 application also provides details of staged operational phases (subject to funding) that would be complemented by incremental car parking areas. The Department is satisfied that these elements provide an overall plan for future potential expansion of the hospital building up to 2033 and beyond. There is sufficient space on the eastern side of the site to accommodate additional road network / landscaping and / or other elements on a need's basis in the future.

The Department has reviewed the site layout / building heights / setbacks and is satisfied that the Stage 2 application is consistent with the overall approach of the TVH Concept Proposal. An assessment of the design of the individual buildings is provided below.

Siting of the buildings and internal design of the new hospital building

The TVH Concept Proposal masterplan was planned around a linear spine, with the hospital building forming the nucleus and connected to forecourt spaces by pedestrian and vehicular networks. Consistent with the TVH Concept Proposal, the siting of the buildings and the internal layout of the new hospital building in the Stage 2 application are ordered around a main north-south civic axis and an east-west secondary spine ('green spine') as identified in **Figure 8** and **Figure 27**.

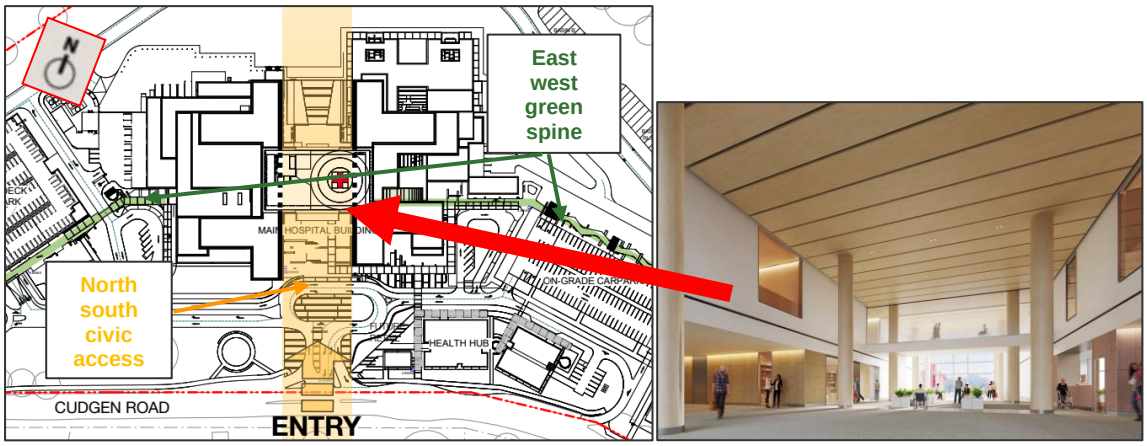


Figure 27 | Site layout showing main north-south civic axis and an east-west secondary spine (left) and the double-height lobby on the ground floor to emphasise the axis (Source: Applicant's EIS)

These axes are designed to organise the new hospital building spatially, provide key pedestrian linkages, assist with wayfinding, delineate the main public realm spaces, and provide light and views.

This arrangement is most clearly expressed at the main ground floor / entrance level of the hospital (**Figure 28**), which includes a double height entry foyer along the main north-south axis (**Figure 27**).

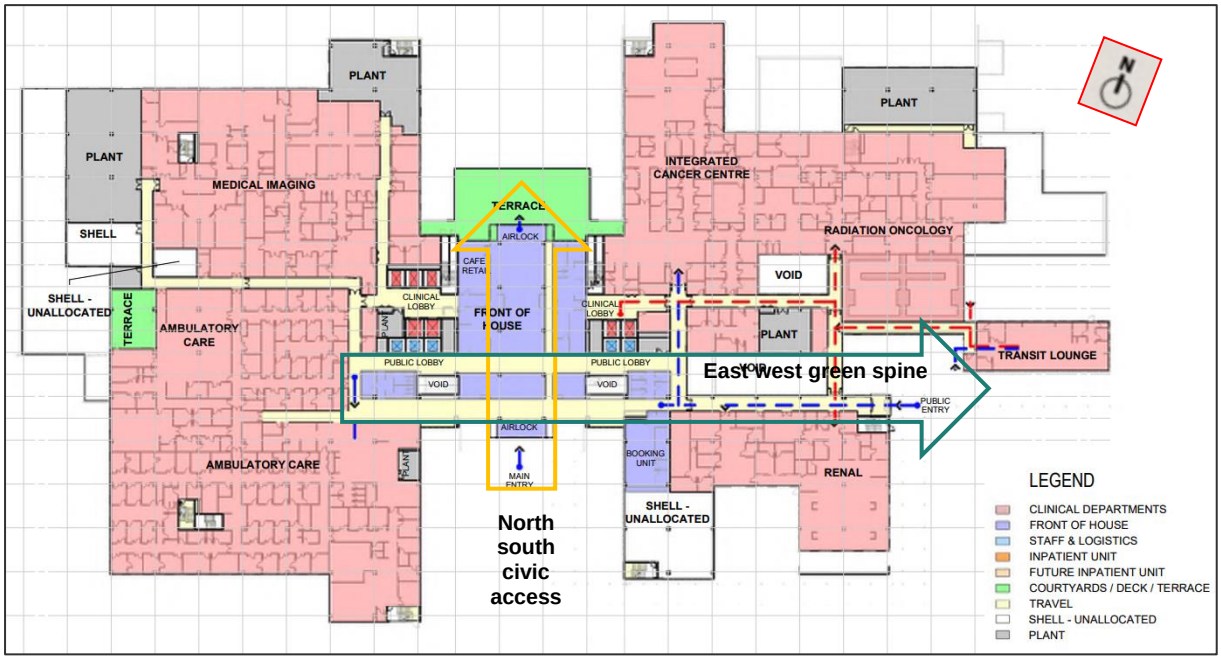


Figure 28 | Ground floor layout showing main axes (Source: Applicant's RTS)

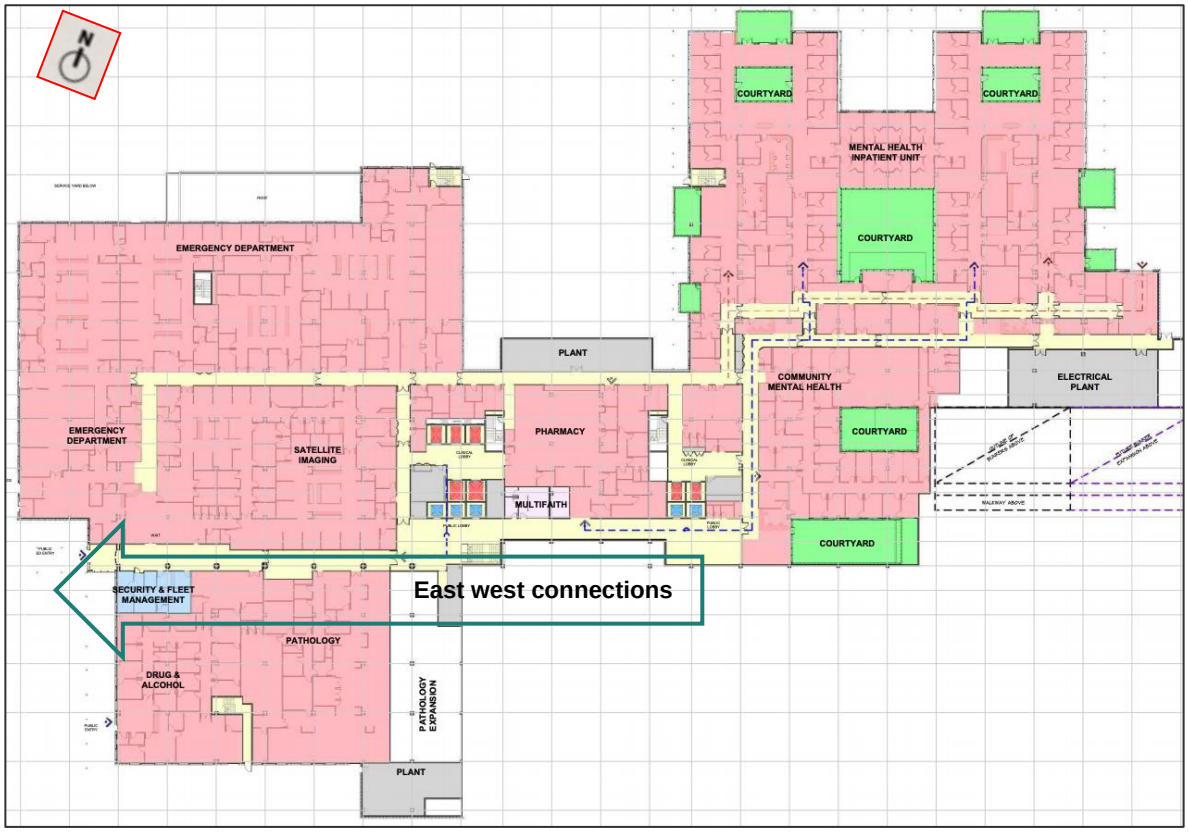


Figure 29 | Lower ground floor layout with east-west connections and courtyards (Source: Applicant's RTS)

The internal design of the hospital utilises opportunities to integrate landscaping within the building to continue the 'green spine' through the ground / upper floors, mainly on the eastern wings (**Figure 29**).

The axes are also translated to upper levels, which include open plan staff areas on the north-south axis and key circulation spaces and lift cores along the east-west axis as identified in **Figure 30**.

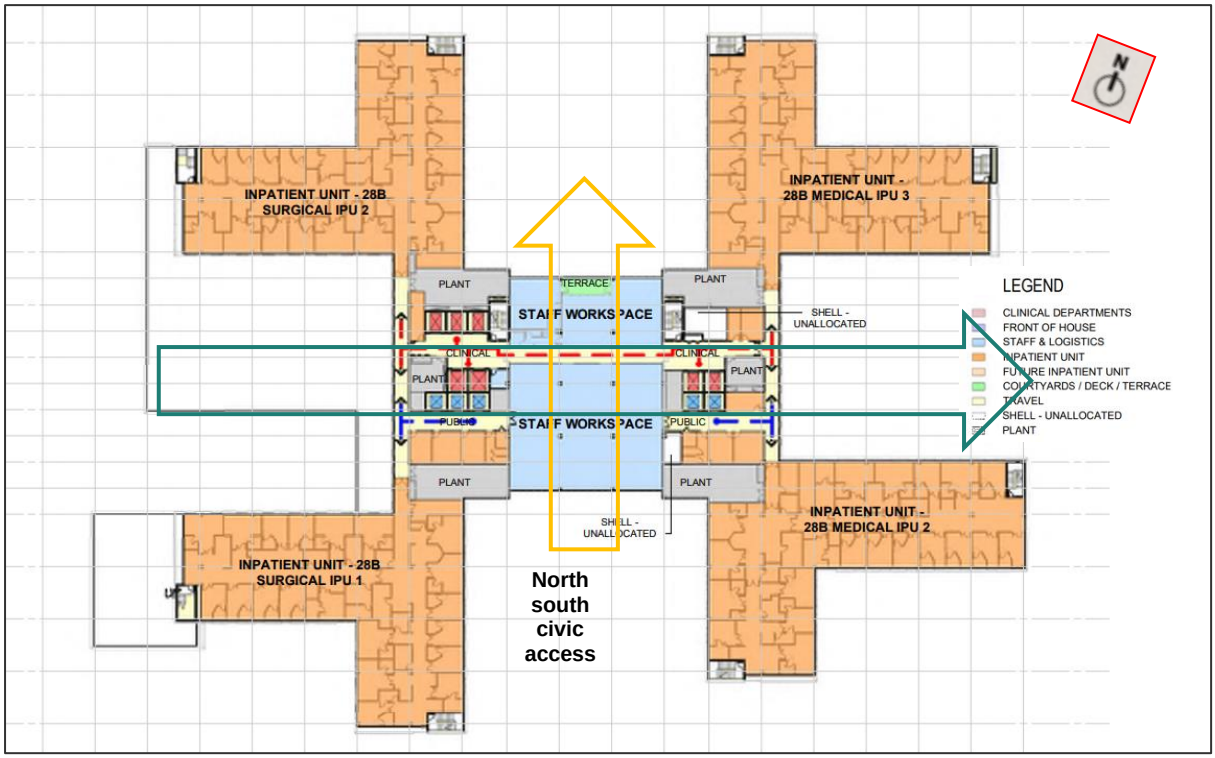


Figure 30 | Typical layout of an upper level (Level 4) identifying the two building axes (Source: Applicant's RTS)

The other buildings within the site, including the Health Hub, multi-deck carpark and the Skills Centre are located on either side of the new hospital building. Public spaces are designed around the main entrance to the hospital and the Health Hub, and the overall site plan has consideration for Crime Prevention Through Environmental Design principles. The details of the pedestrian connections / landscaped public spaces are discussed in **Section 6.2**.

The buildings within the development area are sited to be above the PMF level, the marked APZ and the wetlands to the north, as identified in **Figures 7** and **8**. The TVH Concept Proposal assessment established that the site is subject to a potential risk due to odours from fertilisers and spray dust due to the agricultural uses to the west and south of the site. Consequently, the multi-deck carpark, in conjunction with vegetative buffers, are proposed on the western side to act as a buffer between the new hospital building and the adjoining agricultural lands.

The Applicant advised the siting of the buildings, internal design of the hospital and the landscaping were developed in consultation with State Design Review Panel (SDRP) and Government Architect NSW (GANSW), as required by the development consent for the TVH Concept Proposal.

During the EIS exhibition, GANSW advised that a number of concerns raised at the SDRP meetings were not addressed in the design. The key concerns raised by GANSW related to the internal design of the new hospital building and the lack of landscaping opportunities within the building. GANSW questioned the legibility of the east-west 'green spine' and the long, narrow corridors at the ground floor with lack of access to natural light. Other concerns related to the lack of upper level terraces or sky gardens, courtyards, light voids with associated impacts for amenity, and use of lifts rather than stairs between floors.

Council raised similar concerns and recommended that visual and physical connections between the building to the surrounding landscape be increased and opportunities for legible east-west links, courtyards and light wells be explored. Council also recommended that plant rooms be relocated from the northern facades to allow solar access to IPUs. Community submissions made recommendations in relation to internal design and materials, including provision for a therapeutic pool.

In response, the Applicant's RTS advised the floorplate designs of the building are guided by the functional needs to accommodate hospital workflows and achieve critical clinical internal travel distances, thus preventing internal courtyards within certain areas. Notwithstanding, the floor plans incorporate courtyards and outdoor areas where operationally and clinically appropriate. However, the proposed design also responds to impacts of helicopter downdraft, which restricts provision of open courtyards in the central area.

Additionally, solid construction is proposed on the southern / western façades of the new hospital building to protect users against odour and spray dust due to nearby agricultural uses. Further, the northern and western sections of the building are designed to respond to the APZ requirements. These constraints limit opportunities for outdoor areas within the building and at the upper levels.

GANSW reviewed the RTS and reiterated their comments regarding the design of the hospital.

The Department has reviewed the site masterplan and is satisfied that the proposed layout is consistent with the TVH Concept Proposal. Incorporation of the two axes is legible in the overall site layout. The provision of the 'green spine' is a reasonable approach to integrate landscaping with developed areas of the site. The proposed Health Hub buildings are low in scale and would provide an appropriate transition between the rural areas and the urbanised structure of the hospital that is proposed to have a setback in excess of 60m from Cudgen Road.

Regarding the internal design of the new hospital building, the Department considers that a double height main lobby would provide a pleasant entry experience and connect the visitors / patients and staff to the outdoor views in the first instance. **Figures 28** and **29** demonstrate that courtyards and terraces have been provided on all levels except one. IPUs have been designed on the upper levels to have access to sunlight and scenic outlook of the rural areas, distant hills and the coastline. The main ground level east-west connection towards the transit lounge would be clearly legible and enjoy reasonable levels of natural light and outlook. The Department notes that the lower level east-west connections lack the same level of amenity as the north-south connection. However, this layout ensures the functional needs of the hospital can be met while providing effective public connections. The Department agrees with the Applicant that the western wing of the building would accommodate emergency care areas with limited opportunities for open courtyards.

The Department agrees with the Applicant's reasons that the overall internal design of the new hospital building caters for the clinical needs of the hospital, while responding to the amenity of the users and the constraints of the site in relation to bushfire and adjoining agricultural uses. Considering the need of the critical facility in the locality, the Department is satisfied that the internal design provides a balanced approach to providing the required clinical facilities and integrates landscaping in the building. The adequacy of the design of the ancillary buildings on the site and the landscaping is discussed later in this report.

Built form of the new hospital building

At the time of assessment of the TVH Concept Proposal, the Applicant conducted an analysis of various types of built form and confirmed that a stacked or a 'podium – tower' typology was the preferred option for the site, distributing the building functions in three zones (highest building density at the lowest zone). The Applicant's intention was that the final design would promote a coherent environment, focus on human health, and enhance the local region.

The detailed design of the new hospital building follows the TVH Concept Proposal design philosophy. The new hospital building is designed to present as a contemporary institutional building ranging from two-nine storeys with a maximum height of 45.9m (including the basement, plant room and roof). The 45.9m height would not be perceived from any of the external public domain areas (**Figure 33** and **34**). The average height of the building at the Cudgen Road frontage would be approximately 26.7m.

The key elements of the building are the four 'Quadrant Anchors' (the distinct elements six-seven storey high elements); the central core connecting the anchors (seven-eight storeys excluding plant rooms); and small, low scale elements expressed as clusters of finely articulated smaller forms.

A comparison of the proposed volumetric stacking arrangement in the Concept Proposal and the conceptual elements of the detailed design are provided in **Figure 31**.

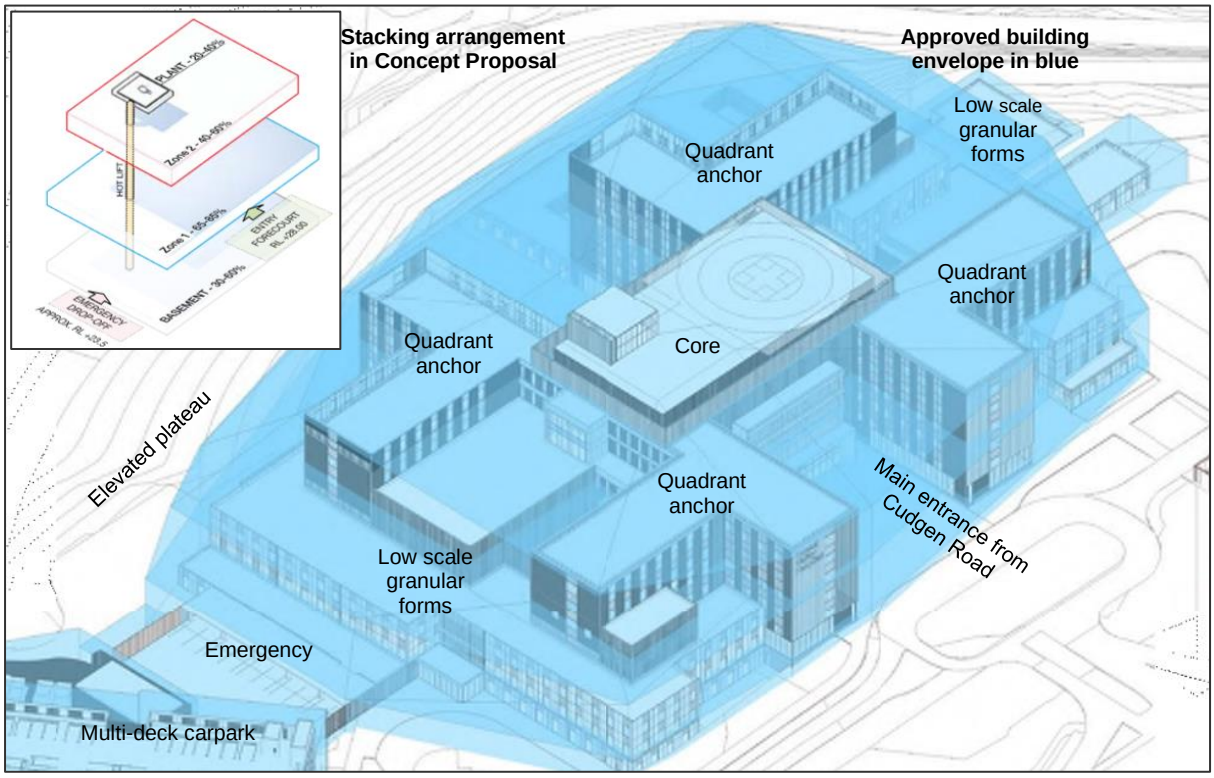


Figure 31 | Isometric view of the new hospital building indicating key elements and comparison with the stacking arrangement in the TVH Concept Proposal (Source: Applicant's EIS)

Externally, the building mass is proposed to be modulated via building elements of variable heights and façade treatment. The proposed materials and finishes focus on colours that blend with the surroundings and are also durable, as listed below:

- the ‘Quadrant Anchors’: lightweight metal cladding, using a variety of metal materials, textures and hues including cool and natural warm tones. Vertical fenestration and cladding patterns would be utilised to prominently express the main building elements.
- the core: a glass window wall with a combination of metal panel and glazed façades, expressed in darker hues than the Quadrant Anchors, as a recessive element.
- the small, low scale building elements: clusters of more finely articulated smaller forms of precast concrete panel construction with textured and earthy colours, in warm hues to connect with the site’s earth tones.

The various conceptual elements of the building and their modulation along with the proposed materials and finishes are shown in **Figures 9**, **10**, **31** and **32**.

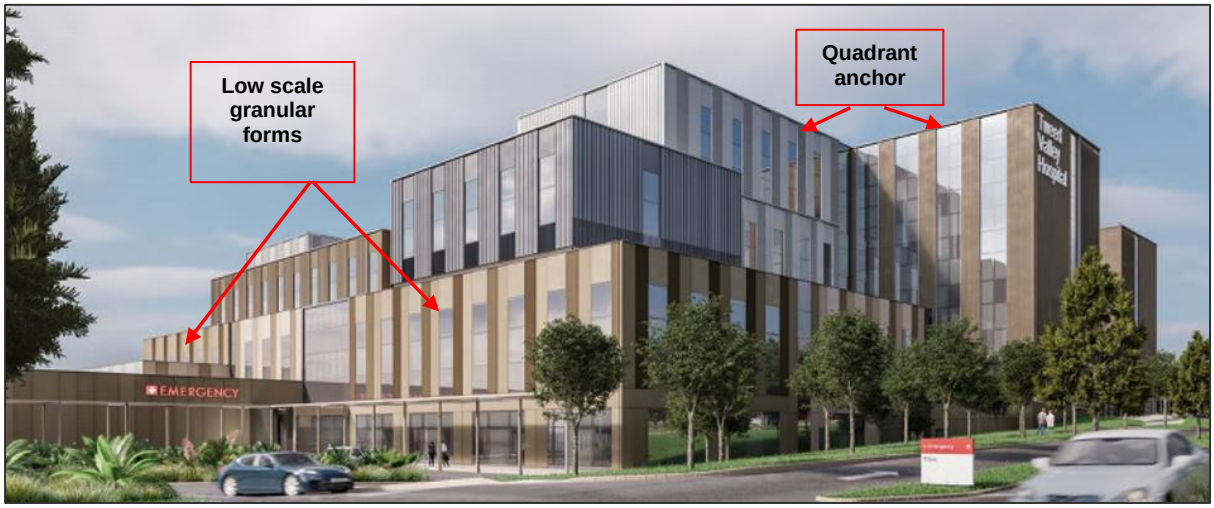


Figure 32 | Southwest corner of new hospital building and emergency entrance, demonstrating the variation in building modulation and façade materials (Source: Applicant’s EIS)

During the EIS exhibition, GANSW commented the external design of the new hospital building would dominate the agricultural landscape but did not recommend any amendments to the design. Council raised concerns regarding the external design and commented that the structure would be visually prominent within the broader visual catchment and not complement the pre-agricultural context or the Kingscliff coastal subtropical context. Council recommended that the built form incorporate greater diversity in articulation, material and finishes; increased horizonal elements; layered or screened elevations to reduce heat load on facades; stronger horizontal emphasis; breaking of building mass; integrated upper level external landscape terrace / balconies to soften the built form; incorporation of green walls, and landscaped elements across strategic elevations. Public submissions commented about the adverse visual impacts due to the building bulk, inappropriate design / materials and impacts of light spill from the building at night.

The Department reviewed the EIS and requested that additional planting and canopy trees be provided to offset and mitigate the visual impacts of the hospital building and landscaped sky gardens be incorporated to soften the overall built form.

In response, the Applicant’s RTS included an addendum bushfire report which advised that the building footprint is required to be managed as an Inner Protection Area (IPA). Rooftop gardens do not meet the relevant requirements as vegetation is required to be separated from the building in the IPA. The report acknowledged that rooftop gardens may be designed to comply with fire protection requirements, but this would involve higher construction standards, and may result in some level of

bushfire risk. The RTS concluded plantings on the hospital building would not be pursued due to these reasons. The Applicant also advised that canopy tree planting has already been optimised and complemented by vegetative buffers on the western and southern boundaries.

The Applicant's response to screened elevations is discussed in **Section 4.4**. The RTS advised that the ground level viewing deck on the northern façade is recessed between the quadrant anchor forms to assist with shading. Thus, additional shading devices within the building were not needed.

The Department has reviewed the design, the submissions and the Applicant's justification. The Department agrees with GANSW / Council and recognises that the new hospital building would be very large in its rural / Kingscliff subtropical context. It would present as a prominent element when compared to surroundings / nearby landscape features and would be highly visible regionally.

However, the Department has previously assessed the urban design and accepted that the proposed building typology and maximum floor plate dimension are driven by clinical and functional requirements such as minimum walking distances, location, accessibility to facilities and disabled access. At the time of assessment of the TVH Concept Proposal Department recommended that the design in the Stage 2 considers: a high standard of design; materials; a form and external appearance to improve the quality of the public domain; level changes and articulation; minimisation of amenity impacts to neighbours; and integration with landscaped areas and public spaces.

The external built form of the new hospital building has evolved from, and is consistent, with the approved design concept. It has incorporated the Department's design recommendations where possible, as:

- it focuses on clinical functions while achieving amenity and landscape integration within the building, where possible.
- the building bulk has been reduced at the upper levels, maximising the density of the lower level floor plates, introducing additional functional areas at the basement level and setting the plant rooms back from the building edges.
- the design aims to integrate landscape with the building as a continuation to the green spine.
- internal courtyards are proposed where possible, to continue the green spine through the building.
- the external appearance of the building would exhibit a high standard of architectural design.
- the built form would present as organised blocks with legible quadrant anchors uniting the overall form and relating key functions to the central core.
- the anchors would also assist with access and wayfinding for the users of the site.
- the built form has been reasonably modulated and incorporates a wide range of materials and finishes to provide visual interest.
- the design achieves a stepped built form at the rear and on the sides to account for the variation in topography on the site.
- the materials and finishes are appropriate for a hospital and includes a variety of materials.

The accommodation of the functional areas, while stepping the building to connect to the site is demonstrated in **Figures 33** and **34**. The building heights reduce progressively to connect with the rural-residential and agricultural context of the broader area. Details submitted with the application also demonstrate that due to the building setbacks from site boundaries, overall shadowing impacts to neighbours would be negligible, and no unacceptable impacts are expected to arise in terms of wind impacts. The building materials focus on local colours and reduction of reflectivity.

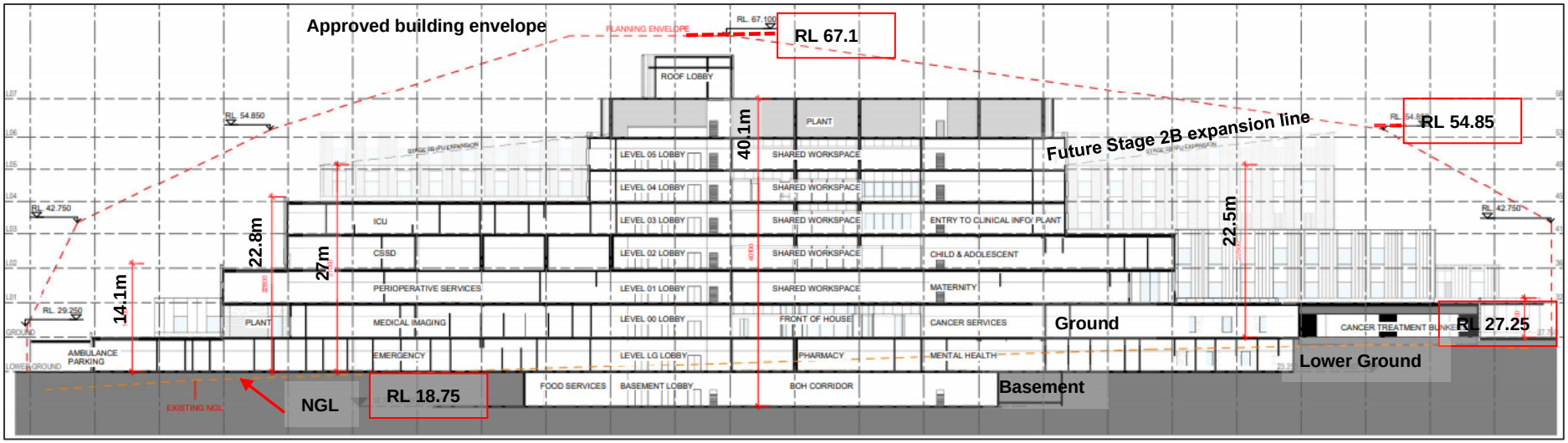


Figure 33 | East-West Section through the new hospital building identifying the lobby / emergency / staff areas / plant room (Source: Applicant's RTS)

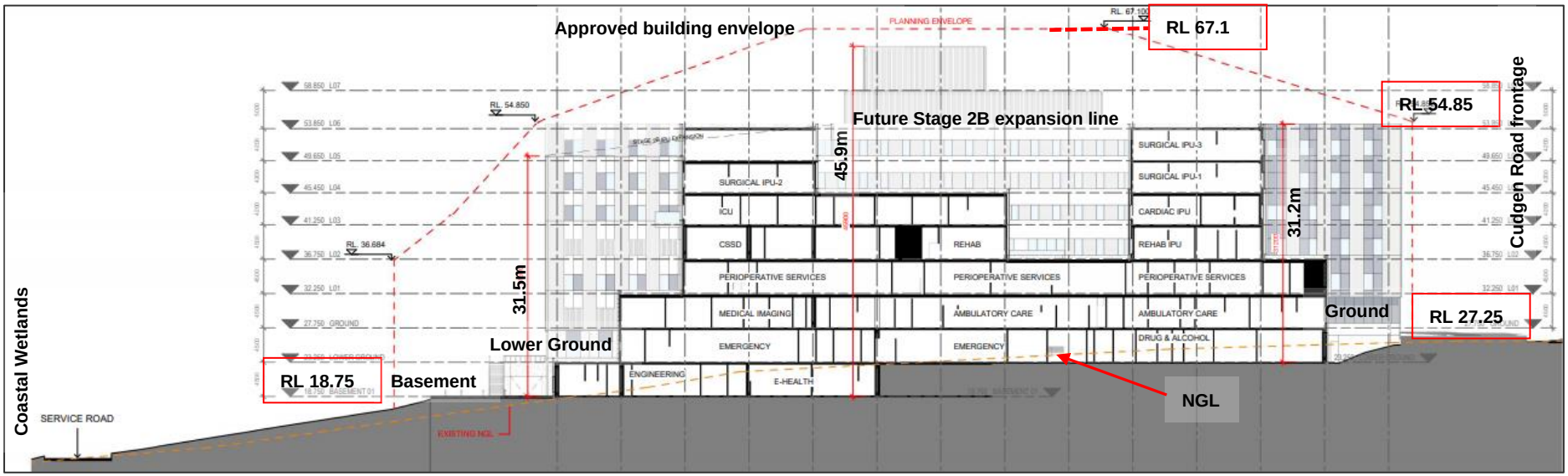


Figure 34 | North-South section through the new hospital building identifying the emergency / IPU areas and stepping of building (Source: Applicant's RTS)

The Department is satisfied that the proposed built form would not have an unreasonable impact on nearby residential properties due to overshadowing or overlooking.

While roof top / sky gardens cannot be included due to bushfire restrictions, the Department notes there are opportunities for additional canopy tree planting along the building's edges, as discussed in **Section 6.2**. Given that the average building height at the street frontages, the addition of 25m high canopy trees would effectively screen the building mass from the immediate public domain areas. Additional tree planting would also connect the building with the surrounding agricultural lands to some extent, reduce light spill at night, reduce overlooking opportunities on to neighbouring properties, improve shading and reduce reflectivity.

The Department has recommended a condition to this effect, details being discussed in **Section 6.2** Subject to its implementation, the Department is satisfied that external built form impacts of the proposal would be reasonably mitigated.

The visual impacts of the built form on the local and the regional setting (Kingscliff context) and the reasonableness of the proposed built form having regard to its visual impacts as well as impacts at night and light spill are discussed in **Section 6.2**.

Design of the multi-deck carpark

Details of the multi-deck carpark design are discussed in **Section 2** and identified in **Figures 16** and **17**. The building would be much smaller in scale than the new hospital building as shown in **Figure 35**, although it would accommodate ten levels of car parking when fully developed. The rectilinear form is driven mainly by the functionality and visual interest is proposed to be achieved by a variety of façade materials and louvred screens. Planting is proposed along the main façade screens to integrate landscaping with the building.

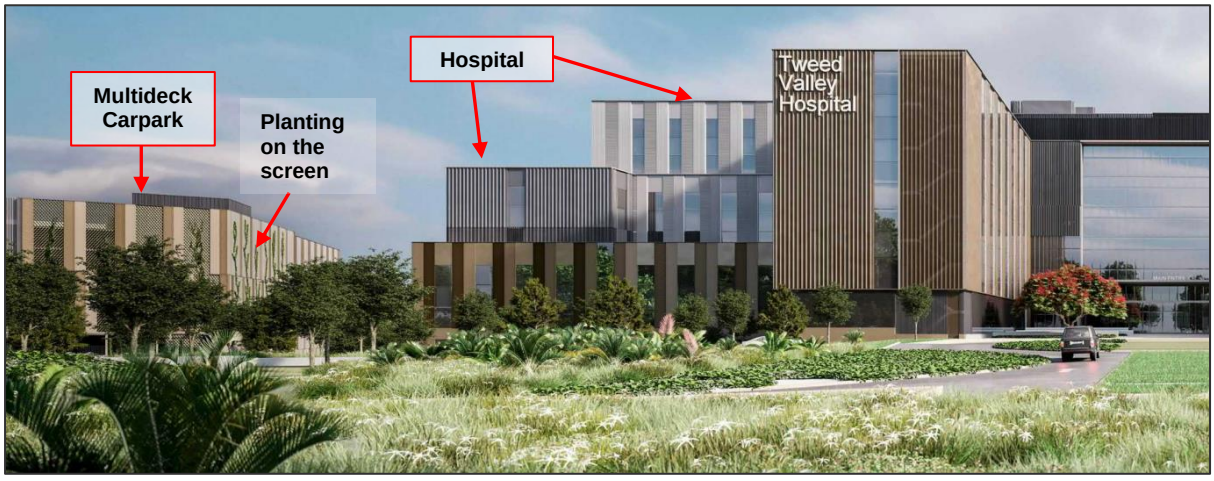


Figure 35 | Site as viewed from Cudgen Road showing size of carpark relative to new hospital building (Source: Applicant's RTS)

During the EIS exhibition, GANSW did not provide comments on the design of the multi-deck carpark. Council commented that the carpark should introduce further articulation though changes in massing, softer design elements, green walls and variation of materials.

In response, the Applicant's RTS emphasised that the intent of the multi-deck carpark façade is to retain the solid elements and metal façade / mesh compositions which complement the hospital building. Greening of the walls is proposed through the planters.

The Department considers that the built form of the carpark aligns with expectations for parking structures. The Department is satisfied that it presents as subservient to the new hospital building and incorporates materials and finishes which complement that building. The proposed at-grade connection between the hospital and carpark is acceptable as it aligns with the green spine in **Figure 8**. The Department has recommended a condition to ensure that an all-weather covered access is provided between the hospital and the carpark (**Section 6.2**). The visual impact of the structure and recommended conditions are considered in **Section 6.3**.

Design of the Health Hub and Skills Centre

The design details of the Health Hub and temporary Skills Centre are discussed in **Section 2** and **Figures 18** -**22**. Public authority and community submissions to the EIS raised no concerns regarding these buildings.

The Department is satisfied that the proposed Health Hub built form at the main site entrance would act as an appropriate transition between the new hospital building and the street. The buildings include appropriate articulation in form, variety in facade materials and complement the design of the main hospital building. Associated covered pergolas complement the buildings and provide all weather pedestrian access to the main building. The Skills Centre is a temporary building and would be removed after the construction phase and impacts of this building are acceptable.

6.2 Landscaping

The TVH Concept Proposal approved the landscape masterplan for the site with 12 landscape zones. Consistent with the terms of approval, the Stage 2 application includes a detailed landscape plan.

During the EIS exhibition, Council raised concerns regarding the proposed landscaping and recommended inclusion of additional retreat and relaxation areas. Council also recommended all weather protected pathways between carparks and the hospital, upgrade of the existing pathway along Cudgen Road and Turnock Street for pedestrians, cyclists, and scooters. GANSW emphasised landscape integration within buildings, additional planting along road network, introduction of walking loops, and need for external spaces to promote wellness in users of the hospital. EESG requested that the proposed koala food tree species and steppingstone habitat for fauna be identified.

One community submission suggested that stronger east-west pedestrian links be developed within the site including a footpath connecting the site to one of the adjoining lands that is proposed to be developed into a park in the future by the relevant owner.

The key elements of the landscaping are provided in **Figure 36** and discussed in the sections below. The adequacy of internal courtyards and biodiversity matters are discussed in **Section 6.1** and **6.4**.

Landscaping strategies and outdoor spaces

The Department's assessment of the proposed landscaping strategies within the site concludes that it is consistent with the design approach in the TVH Concept Proposal. The landscape zones would ensure retention of the significant features and biodiversity values of the site. It would also include measures to offset the loss of significant agricultural land through provision of edible food varieties in the gardens.

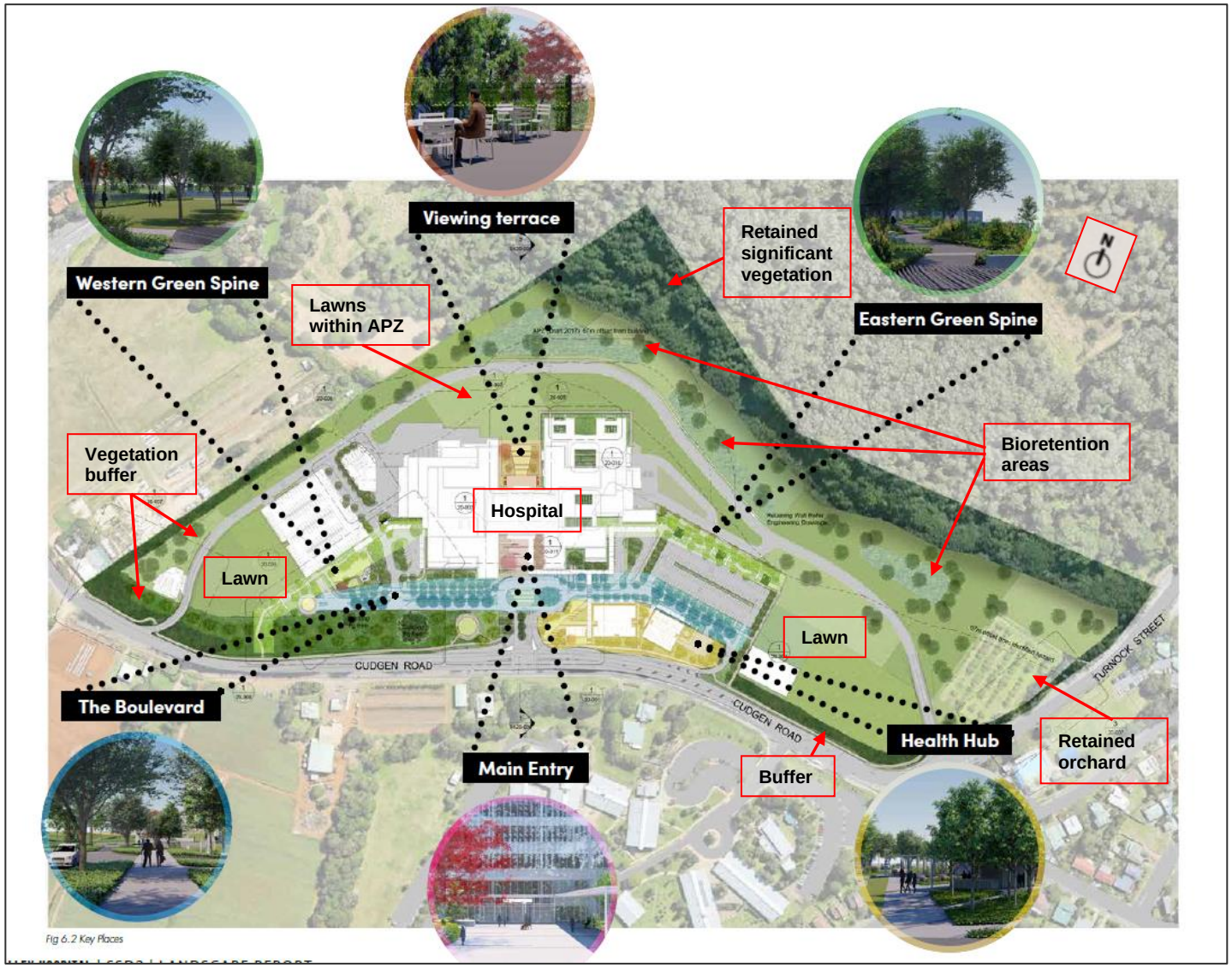


Figure 36 | Landscaped spaces within the development footprint (Source: Applicant's EIS)

The Department is satisfied that the landscape design strategies and the elements with associated vegetation would offer substantial visual amenity and help to integrate and soften the appearance of the development in the surrounding landscape, subject to additional recommended conditions. The key landscaped outdoor spaces around the development footprint are discussed below and identified in **Figure 37**:

- *green spine*: the most important public domain space, being the connector between the new hospital building and the carparks on either side. The 'green spine' would include a gently sloping pathway connection to a range of open spaces including the village green (in front of the multi-deck carpark); Aboriginal courtyard (adjacent to the western lobby entry); and elevated points with landscape views to the north.
- *Health Hub*: a combination of open spaces including the main entry from Cudgen Road bus stop featuring a series of lawns with seating and generous planting to the roadway edge. These areas are anticipated to be used for social activities. Places of retreat in this area include the smaller scaled lawn and seating node between the two buildings and the Aboriginal courtyard.
- *edible plants in gardens*: hospital gardens would incorporate edible food varieties.
- *internal courtyards*: courtyards are distributed within the new hospital building.
- *Cudgen Road pocket park*: the proposed pocket park immediately west of the main roadway.
- *pedestrian pathways*: series of paths through the open spaces for pedestrian and cyclists.

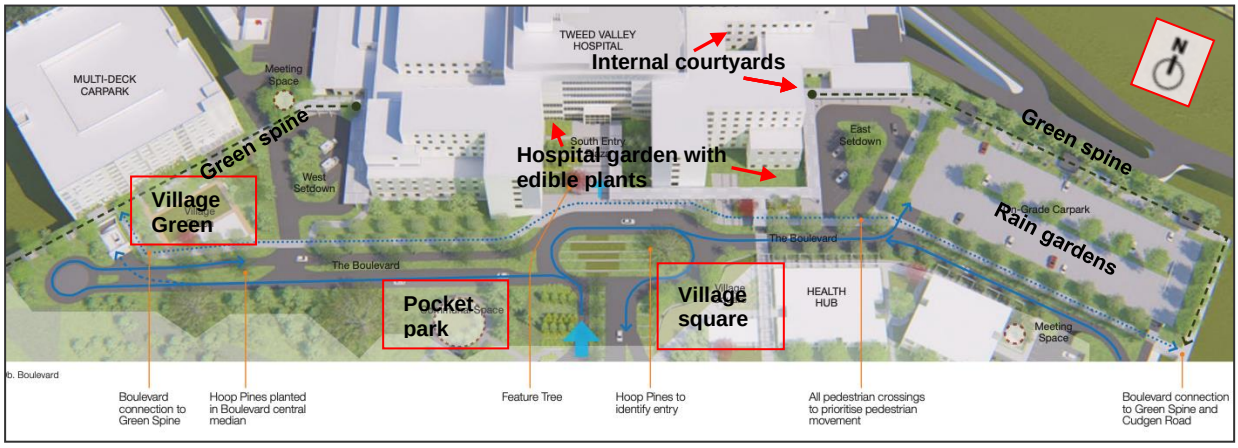


Figure 37 | Landscape elements within the development footprint (Source: Applicant's EIS)

The Department considers the development would include a range of well-designed and landscaped external spaces to meet the needs of hospital users. Staff, patients and visitors would all have access to outdoor areas to enjoy sunlight, fresh air, views, passive recreation and relaxation. The proposal is acceptable with regard to the provision of suitably designed outdoor spaces.

Plantings and APZ

As identified in **Figure 36**, the development would retain the significant vegetation to the north within the wetlands. An orchard to the east and vegetation comprising a potential koala habitat would also be retained. Vegetative buffers are proposed on the southern (30m wide) and western (10m wide) boundaries to screen the development from surrounding agricultural uses. New trees, shrubs and groundcovers are proposed across the site with maintained lawns and suitable tree species.

The landscape plans supporting the EIS provide a broad planting schedule for the site with no specific location, species for new plantings or the overall number of new trees. The planting schedule indicates some trees which would have a mature height of over 20m, but the majority between 2-10m.

During the EIS exhibition, concerns were raised by public authorities, the Department, and in community submissions regarding a lack of canopy trees on the site and the resultant visual impacts.

In response, the Applicant's RTS indicated that canopy tree plantings are optimised through the retained vegetation and proposed vegetative buffers. Thus, no further planting is necessary. The Applicant additionally indicated that canopy trees to the north-west would not meet the APZ requirements.

The Department's assessment of the landscape plans concludes that the site, when developed, would include insufficient canopy trees to visually screen the development and connect it with the existing landscaped settings of the locality. This is evident in the photomontages in **Section 6.3**.

While bushfire restrictions apply to the north-west section of the site, additional canopy trees may still be provided in the north-west, in accordance with the provisions of Planning for Bushfire Protection (PBP) 2019. PBP 2019 does not prohibit tree planting within the APZs, however includes recommendations regarding the percentage of canopy cover in the IPA and Outer Protection Area (OPA) as well as canopy separation measures. On this basis, the Department considers that it would be possible to provide new large canopy trees within the APZ to the north-west.

Additionally, the Department considers that there is considerable opportunity to provide large canopy trees along the edges of the new hospital building and the multi-deck carpark to soften the visual impacts of the development, especially to the south and east The Department has therefore recommended that landscape plans be updated to include:

- location, species and expected mature height of each new tree.
- provisions for plantings of large canopy trees (advanced species), including trees that would reach a mature height of at least 25m and effectively screen the development. Key locations may be the IPA and OPA areas, south of the new hospital building, within designated vegetative buffers, and to the south-east near the carpark.
- photomontages to demonstrate the effectiveness of the additional canopy tree planting.

Pedestrian pathways and connections

The proposal provides a good level of pedestrian connectivity within the site, providing safe and level access to and from all key destinations including building entries, bus stops, parking areas and drop-off locations. Bicycle access is also provided, including bicycle parking and end-of-trip facilities.

In response to the recommendations from GANSW regarding pedestrian pathways, the Applicant's RTS advised that walking loops to the north of the site are not feasible due to the significant level changes in this section.

In response to Council's recommendations regarding pedestrian pathways, all weather protected walkways and upgrades to Cudgen Road, the civil plans supporting the Applicant's RTS indicate that the existing shareway along the frontage of the site would be upgraded to a new 2.5m wide shareway. The Applicant has not committed to any further upgrades to the roads. The pedestrian and cycle links are identified in **Figure 38**.

The Applicant provided an additional response to the community concern regarding the retaining walls on the northern side of the site along the service roads. The response indicated that the walls are required on the northern side to maintain slope stability and ensure ambulance access that complies with the relevant standards. The walls are restricted to an approximate maximum height of 3.4m.

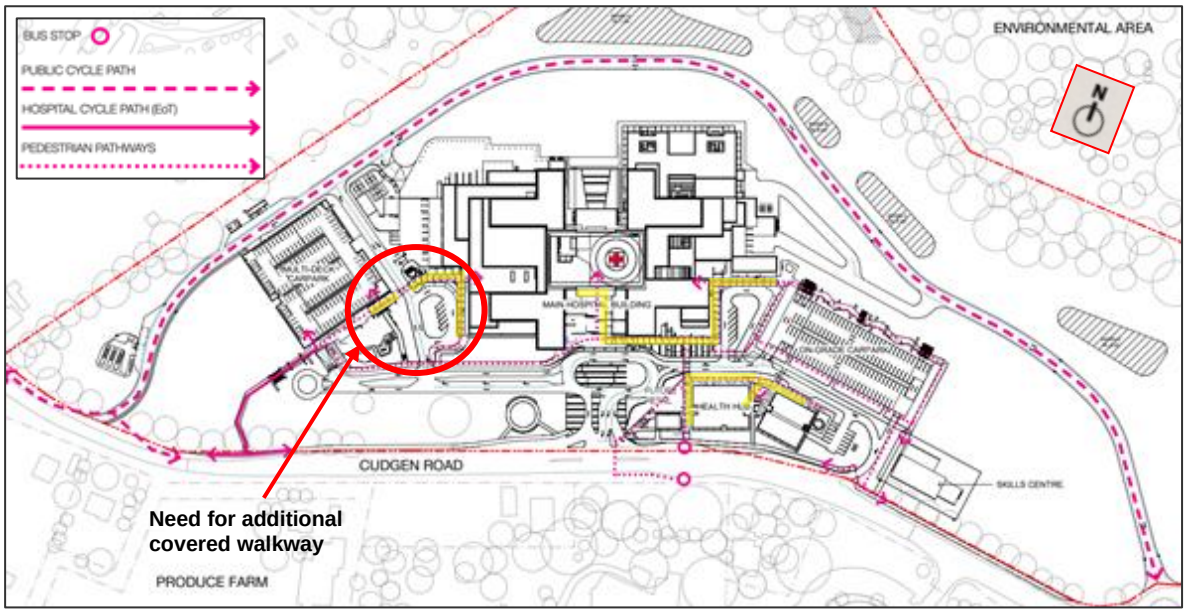


Figure 38 | Pedestrian pathways, links and covered walkways (highlighted in yellow) (Source: Applicant's EIS)

The Department has reviewed the pedestrian connections and considers them to be appropriate for the site. The extent of covered walkways (shown in yellow in **Figure 38**) satisfactorily provide all-weather protection for pedestrian users. However, the Department considers that continuous covered access should also be provided between the multi-deck carpark and the hospital building, ensuring easy access for majority of staff and visitors. A condition has been recommended to this effect.

The Department supports the Applicant's commitments to provide a shared pathway along the frontage of the site to facilitate pedestrian, cycle, and mobility scooter access. A condition is recommended to ensure delivery of the upgraded share way to Council's standards.

The Department has reviewed the matters raised in a community submission and considers that the proposed retaining walls on the northern side would not be visible from the public domain areas. Therefore, no concerns are raised regarding these walls. The additional pathways to provide nature walks, or east-west connections including to the adjoining site do not form part of this application.

6.3 Visual impacts

The site's visual catchment comprises a mix of rural lands, forested hills, low density residences and educational establishments. The TVH Concept Proposal (as modified) included visual impact assessment of impact of the proposed building envelopes on the identified key viewpoints.

The Department's assessment concluded that the development would be highly visible both locally and regionally due to its elevated location and appearance as multistorey buildings amidst the rural setting. However, based on the functional parameters and public benefits associated with the development, the Department accepted the building envelopes for the hospital and multi-deck carpark, as proposed.

As required by the conditions of the TVH Concept Proposal, the Stage 2 application includes a detailed Visual Impact Assessment Report (VIA). During EIS exhibition, Council raised concerns regarding inadequacies of the visual assessment methodology in the VIA and the lack of consideration of the visual character of the area. Council also raised significant concerns regarding the visual

impacts of the proposed new hospital building and the lack of photomontages to show the impact of the multi-deck carpark from the viewpoints to the west of the site. Council considered the hospital design to be monolithic, protruding significantly from the existing landform and with minimal demonstration of any mitigation measures to offset visual impact. Council made recommendations for architectural elements to reduce the overall visual impacts of the development.

Community submissions also raised concerns regarding the loss of views due to the multi-deck carpark and the overall visual impact of the development. The submissions also raised concerns about the impact of the development on the entire region at night-time, due to light spill.

In response to the concerns raised by Council, the Applicant's RTS included an amended VIA with an assessment of the visual impact of the development from 21 viewpoints as identified in **Figure 39** The selected views include those identified in the TVH Concept Proposal VIA as well as priority scenic viewpoints in the draft Tweed Landscape Strategy and views from the west of the site.

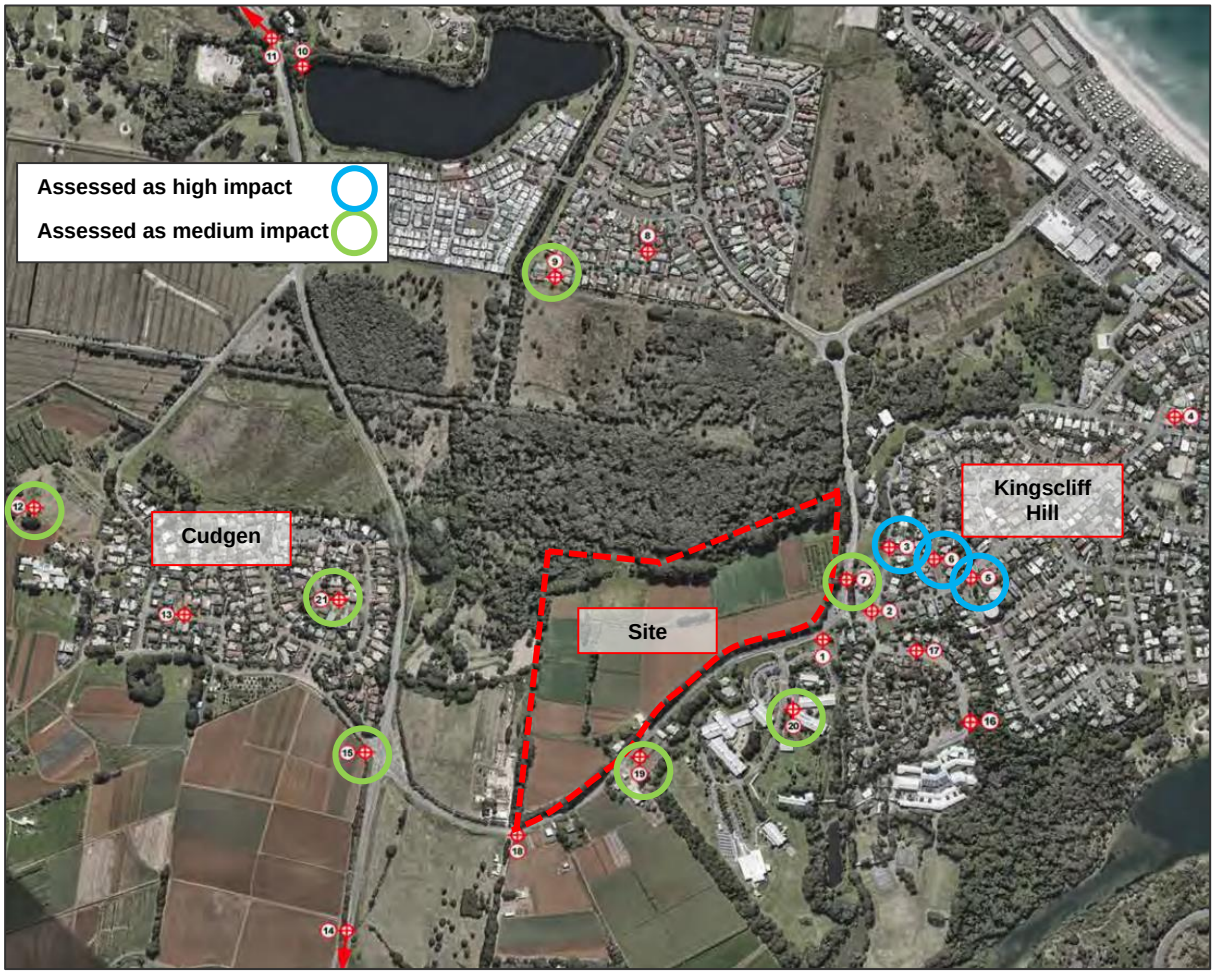


Figure 39 | Viewpoint locations and view impacts (Source: Applicant's RTS)

The visual assessment methodology in the Stage 2 VIA does not rely on the methodology used at the time of assessment of the TVH Concept Proposal. The Applicant advises that the proposed method in the amended VIA is more contemporary and currently under review by the Land and Environment Court as a basis for future VIA guidelines to supersede the current guidelines.

The visual assessment methodology in the amended VIA in the RtS includes a detailed comparison of the existing condition of the viewpoint and the post development condition by providing a

photomontage of the development overlaid on the existing condition. The amended VIA also includes night-time views and impacts from six other key locations.

The visual impact analysis then includes a ratio of substance view loss: sky view loss due to the development. It also uses four categories to define the existing visual quality of the viewpoint and the visual impact on the viewpoint including: negligible (no impact); low (minor negative impact on the pre-existing view); medium (medium negative impact on some natural and manmade features); and high (high impact or loss of predominant natural features or iconic architectural features). These categories are consistent with the draft Tweed Scenic Landscape Strategy.

Based on the assessment, the VIA concludes that the development would have medium visual impact on seven viewpoints and high impacts on three viewpoints. Overall there would be minimal visual impact on majority of the viewpoints, in the context of the site and surroundings. The high and medium impact viewpoints are identified in **Figure 39**.

The Department's assessment has identified that the greatest visual impacts of the proposal would be on the private properties and the public domain areas at Kingscliff Hill. The development would also be significantly visible from Cudgen village to the west and Kingscliff residential areas to the north. The photomontages at the relevant viewpoints and a comparison with the approved building envelope are provided below in **Figure 40**.

Additional photomontages at the above viewpoints were included in the amended VIA to demonstrate that the new hospital building would be located within the approved building envelopes. The Applicant's RTS indicates that the multi-deck carpark's location takes advantage of the existing vegetation screen at the south-western corner of the site. The size of the structure has been reduced by embedding the basement levels utilising the topography of the western embankment. It would also be effectively screened by the existing vegetation, the topography and the distance between the site and the identified viewpoints.

Photomontage at viewpoint 3 (Cudgen Road)

Photomontage at viewpoint 5 (McPhail Avenue)

Photomontage at viewpoint 6 (Oceanview Crescent)

Photomontage at viewpoint 9 (Bellbird Drive)

Photomontage at viewpoint 21 (Guilfoyle Place)

Figure 40 | Views of the development from identified viewpoints (Source: Applicant's RTS)

The Department has reviewed the Applicant's VIA and concludes the hospital would be highly visible both locally and regionally from the key viewpoints identified by the Applicant and in Council's strategic documents. The design and the visual impact of the building would be significant when compared to the existing buildings in the surrounding locality and the agricultural landscape. The Department notes Council's comments on the monolithic nature of the hospital, however, recognises that the design approach relies on the functional needs of the building. The building bulk is required to accommodate the IPUs and the critical functions. A reduction of the building bulk or significant amendment to the vertical built form would have adverse impacts on travel distances and clinical needs, which is not a desired outcome for the region.

As discussed in **Section 6.2**, the Applicant has undertaken a reasonable approach in breaking the building mass, adding additional density to the lower floors and including horizontal elements where possible. The Department also considers that despite the visibility of the hospital from the key viewpoints, the extent of the visual impact of the built form is less than that anticipated by the Concept Proposal.

Regarding the multi-deck carpark, the Department concludes that its building mass would be obscured by the massing of the new hospital building, when viewed from a number of viewpoints. In other cases, it would be below the existing tree line, and therefore not visible from a distance. However, the multi-deck carpark would be a prominent bulky element in the immediate public domain and would be visible both from the Cudgen Road frontage as well as the nearby intersection.

The Department's assessment, however, considers that while the hospital building itself has been articulated, the development does not entirely connect with the surrounding context, due to lack of

landscaping and additional tree canopy. This is shown in a view from the Tweed Coast Road / Cudgen Road intersection (**Figure 41**).

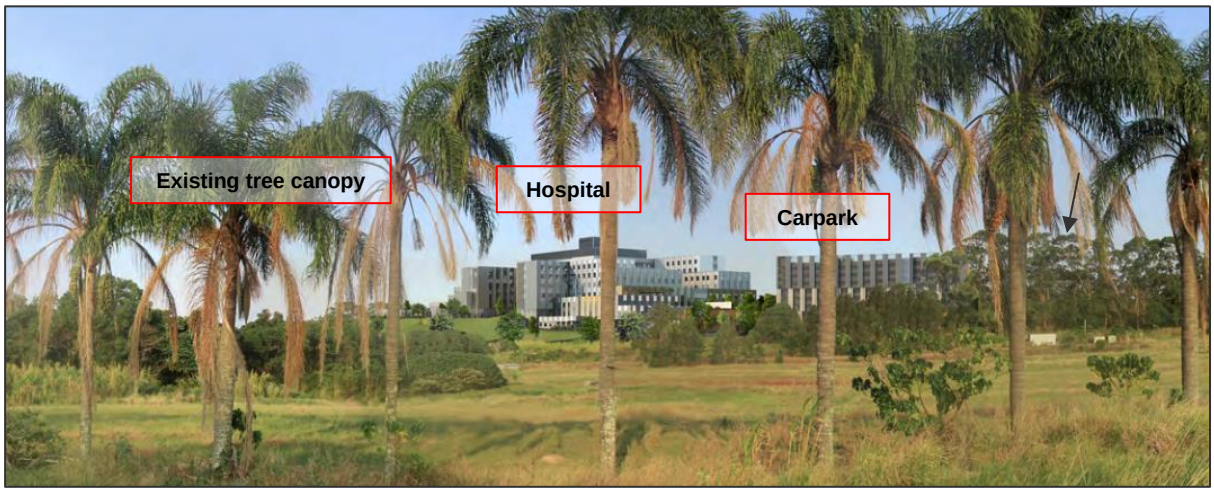


Figure 41 | View form the corner of Tweed Coast Road / Cudgen Road (Source: Applicant's RTS)

Having regard to the above visual impact, the Department has recommended additional conditions for canopy tree planting along the edges of the hospital (to the north-west, west and south) and submission of photomontages to demonstrate that the visual impact is reduced due to the provision of the planting (**Section 6.2**). The Department is satisfied that subject to the additional planting within the building setback areas, effective screening of the development and mitigation of the visual dominance of the buildings on the public domain areas and viewpoints would occur.

Night-time visual impact

The amended VIA includes additional night-time photomontages at six key locations. The images demonstrate that the buildings would also be highly visible at night-time even from a distance due to the lit-up areas and a lack of intervening landscaping. Although the lighting is not considered likely to cause unacceptable nuisance, the proposal would result in adverse impacts to the character of the area at night (**Figure 42**).

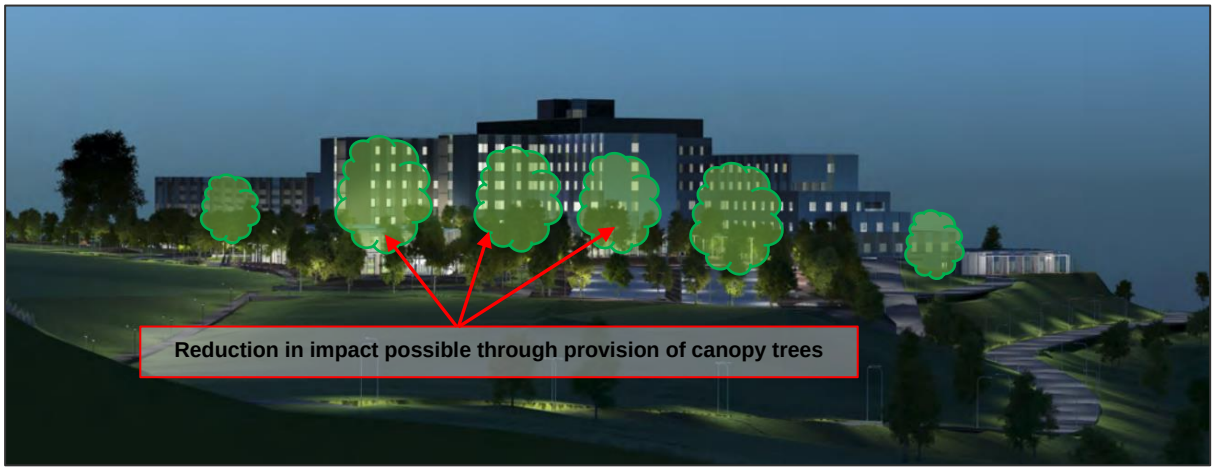


Figure 42 | Images with night lights showing potential impact and possible reductions (Source: Applicant's RTS)

The Department considers that the night-time visual impacts are partly unavoidable due to the nature of use of the building. However, there are possibilities of significant reduction in this impact due to light spill through provision of the canopy trees as recommended by conditions of this consent.

6.4 Biodiversity impacts and coastal wetlands

Biodiversity Assessment Report

The Department notes that the impacts of the proposed development footprint (including the sediment basins) on the biodiversity in the area was addressed satisfactorily in the BDAR for the site (including the Tweed Coast Road / Cudgen Road intersection) submitted with SSD-9575 (Stage 1 BDAR). The Applicant was required to offset the direct impacts of loss of biodiversity and retired the credits during the Stage 1 works. Residual impacts were proposed to be managed through recommended conditions by the Department which required the submission of a Biodiversity Management Plan (BMP) with the Stage 2 application. No further vegetation would be removed under the Stage 2 application.

As discussed in **Section 4.5**, the Stage 2 BDAR includes an updated assessment of the Stage 1 BDAR considering additional indirect and prescribed impacts due to the operations of the hospital and the stormwater works. The Stage 2 BDAR concludes that no significant direct, indirect, prescribed, or irreversible impacts would occur from the proposal in addition to those considered under the TVH Concept Proposal. Subject to responsible construction and operational practices, impacts on the flora and fauna habitat, movement and connectivity can be managed. The recommendations of the Stage 2 BDAR have been included in the BMP. It encompasses both construction and long-term management practices that would be undertaken to mitigate, minimise and offset impacts, including measures in relation to vegetation management, habitat management, rehabilitation, monitoring and reporting.

The Department considers that overall, the proposal incorporates appropriate measures to ensure the long-term protection of existing environmental values on the site, as well as rehabilitation and mitigation measures to improve biodiversity outcomes or offset biodiversity impacts and as required by the TVH Concept Proposal.

However, areas which require further consideration are discussed below.

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. The wetlands and the proximity area accommodate a range of vegetation communities including EECs and an area of potential koala habitat at the north-eastern corner. Sections of the buildings, bioretention basins and other services area would all be located within the proximity area (**Figure 43**).

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 groundwater flows to and from the adjacent coastal wetland.

The location of the buildings / basins within the proximity area in the Stage 2 application, is consistent with the TVH Concept Proposal approval. The Department previously assessed the location of the building envelopes, service road and sediment basins within the proximity area having regard to Clause 11 of the Coastal Management SEPP.

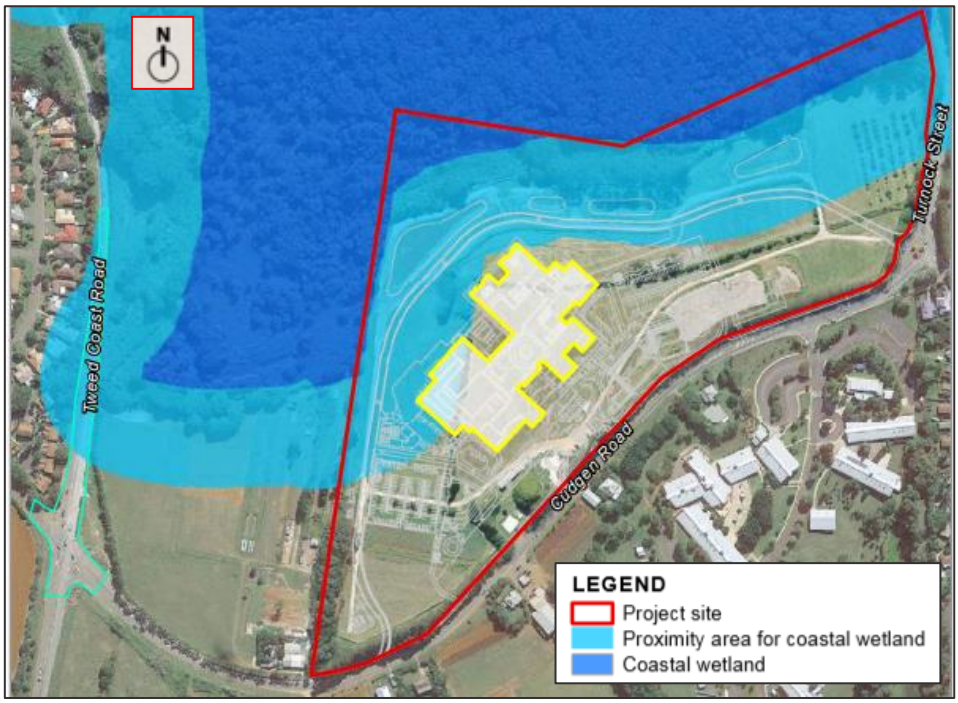


Figure 43 | Mapped coastal wetlands (Source: Applicant's SRtS)

The Department concluded that the location of the development within the proximity area was acceptable, subject to several recommended conditions requiring the Stage 2 application to demonstrate:

- that the stormwater runoff from the development would not adversely impact on the quantity of surface and groundwater flows to and from the adjacent coastal wetland through flow regime analysis.
- detailed stormwater plans including evaluation of hydrology from the development over a representative continuous long-term period, with consideration for seasonal flows.
- review of the stormwater management system by an ecologist to assess the impacts of the stormwater flows on the biodiversity within the wetlands or the proximity area.

Based on the above requirements, the Stage 2 application is supported by a hydrology report assessing the impacts of the stormwater runoff quality and quantity on the wetland hydrology including an ecology report. The Stage 2 BDAR has considered the impacts of the stormwater runoff from the development on the coastal wetlands as one of the prescribed impacts and includes recommendations in relation to water quality and quantity. These recommendations are included in the BMP, which provides the framework for the long-term management practices to offset impacts on the local biodiversity and the coastal wetlands.

The assessment of impacts on the development on the coastal wetlands are discussed below.

Stormwater Management

The stormwater runoff flows over the site, historically drained into the northern wetland (north and west) via sheet flow, being directed by previously constructed depressions and gaps in an existing bund as well as into the existing dam within the coastal wetlands. Surface water quality monitoring test undertaken by the Applicant for the site and the adjoining wetlands, prior to the commencement of the Stage 1 works, revealed that the existing surface water is slightly acidic with elevated concentration of some nutrients and metals, but no hydrocarbon or pesticides.

The proposal would result in a piped stormwater system through the site with concentrated flows into the coastal wetlands at specified points through the sediment basins. The Department notes that parts of the stormwater drainage works have already been approved and constructed as part of Stage 1, including the sediment basins and the associated connections. The Stage 2 application would utilise and improve the Stage 1 stormwater network on the site. The Applicant proposes to collect rainwater from building roofs / impervious areas of the site and discharge the majority of this water to the wetlands via the four existing sediment basins that are proposed to be converted to bioretention basins.

Stormwater flows to coastal wetlands

Stormwater management works would also include additional pre-treatment measures (pit insets and bioretention areas with plantings within the basins) to improve water quality before discharging to the wetlands. The stormwater flow connections in principle are provided in **Figure 44**.

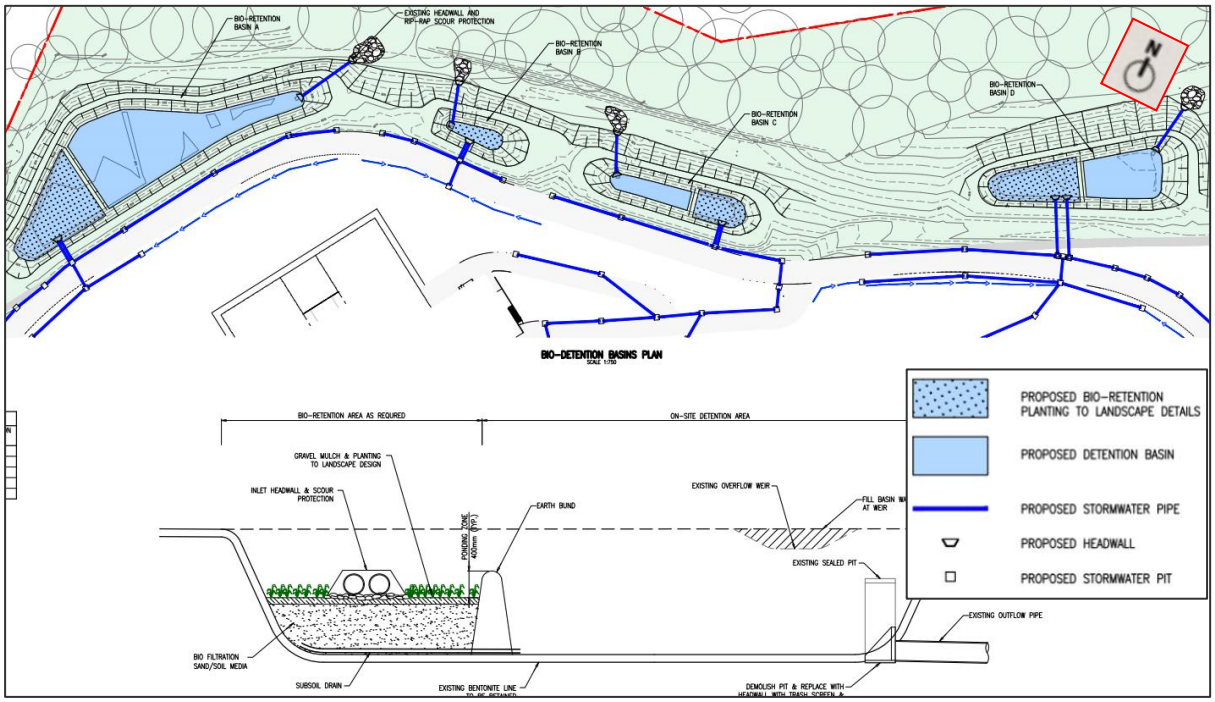


Figure 44 | Extract from the stormwater plans showing bioretention basins (Source: Applicant's RTS)

The Applicant's EIS was supported by a hydrology report that indicated the post-development stormwater would mimic the existing flows and that the quality of the stormwater runoff entering the wetlands from the site would improve due to the stormwater quality treatment measures. It also concluded that the development would achieve the pollution load reduction targets for the site.

The hydrology report noted that the mean total annual runoff flow from the site would increase by almost 50 per cent from pre-development (90.6 ML/yr) to post development (140 ML/yr). To mitigate the impacts of the additional flows, up to 17 megalitres of water per year (ML/y) would be captured and retained on the site within the proposed 400 kilolitres (KL) capacity rainwater tank and through evapotranspiration from the bioretention basins.

The stormwater management system has been designed to ensure peak flow discharges (such as during a 1 in 100 or 1 in 20-year event) can be mitigated to predevelopment levels. However, the hydrology report did not consider the impact of the discharges for smaller rainfall events and concluded that any additional flows during a minor event would only change wetland levels by up to

50mm temporarily (for a day or so). Thus, the flows are unlikely to result in any significant changes to the wetland hydrology or integrity.

Impacts on biodiversity due to the increased flows

The Stage 2 BDAR includes an assessment of impact of the additional stormwater flows on the EECs and TECs within the coastal wetlands as follows:

- the coastal wetlands to the north of the site are dominated by Broad-leaved Paperbark *Melaleuca quinquenervia*. Although this species cannot survive permanent inundation, it has adaptations such as fibrous roots around their lower trunk that are understood to allow the plant to respire during long periods of submersion. Furthermore, the mid- and understory species such as rushes, sedges, ferns and grasses are also adapted to periodic inundation.
- predicted change in flood level from the site's outflows is expected to be very small. The Paperbark swamp forest present are naturally resilient to large scale flood events in excess of the inflows likely to be a result of the Project.
- White Booyong-Fig subtropical rainforest community appears to be limited to the slightly elevated fringes of the Paperbark swamp forest and therefore is unlikely to be materially impacted by the additional inflows expected.
- the predicted change in inflow levels is unlikely to negatively impact or reduce the existing Mitchell's Rainforest Snail habitat to the north of the site through permanent inundation.
- two pH dependent fauna species, Wallum froglet (Crinia tinnula) and Olongburra frog (Litoria olongburensis) prefer inundated habitat with emergent sedge species. Therefore, the likelihood of the presence of these species are less, and if present, there is no apparent likelihood that the additional inflows expected would negatively impact these species.
- sediment basins and stormwater pre-treatment features have the potential to attract cane toads *Rhinella marina* and provide breeding habitat which could impact native fauna species, in particular the Wallum froglet and Olongburra frog (*Litoria olongburensis*) or other reptiles and birds that prey on cane toad *Rhinella marina.* Mitigation measures in this regard have been included in the BMP.

Stormwater harvesting measures

Up to 17ML/yr of runoff would be captured on the site and reused for irrigation and in the air-conditioning plant. Additional stormwater harvesting measures within the site, to reduce water flows during minor rainfall events have not been included in the proposal, except for raingardens in the eastern carpark. The Applicant's EIS advised that additional stormwater harvesting measures (such as trenches, swales or raingardens) would result in increased infiltration on the site. Geotechnical advice has confirmed that further infiltration would increase the risk of slope slip failure on the steep batters.

Independent assessment of stormwater works

The Department engaged Alluvium Consulting to undertake a peer review of the Applicant's initial hydrology report. The peer review noted that while coastal wetlands are well adapted to infrequent large natural flooding events, changes to regular seasonal inflows have a greater potential to impact on the vegetation in the wetland, particularly changes to the dry season conditions. The review concluded the:

- proposal would not result in adverse water quality impacts on the coastal wetlands.
- coastal wetlands are well adapted to infrequent large natural flooding events and therefore additional flows during the wetter periods would likely have minimal impacts on the wetlands.

- total increase in the annual runoff flow would be total increase calculated to be 43ML/yr, out of which the harvesting would capture about 13ML/yr (rather than 17ML/yr), thus resulting in a total increase of flows from the site to be 30 ML/yr.
- additional flow may adversely impact on the hydrology of the wetlands and the EEC habitats, as the flow would not be evenly distributed across the 30.7ha of wetland area (as assumed by the Applicant). The areas of the wetland closer to the inflow locations and pockets of low-lying areas would be more exposed to increased frequency of wetting and inundation than other areas.
- EEC habitat in the wetlands (*Melaleuca quinquenervia*) requires seasonal dry periods for ongoing healthy growth and regeneration. Increased depth and period of inundation would have the potential to reduce plant health and germination, mostly in the localised depressions.
- additional stormwater harvesting measures should be proposed on the site (such as trenches etc) and include provisions to prevent infiltration (similar to bioretention basins). Such measures would enable runoff from frequent small events to be absorbed and stormwater volumes reduced through evapotranspiration.
- impervious areas may result in a lower rate of recharge of groundwater within the site impact on the groundwater flow into the wetlands, and impacts are required to be quantified.

Similar concerns were raised by EESG and Council. Council advised that the proposal should not result in a worsening of impacts or a nuisance to downstream properties due to increased runoff. Conditions in relation water quality and groundwater flows were recommended by Council.

The Department requested the Applicant to provide an updated hydrology assessment report addressing the concerns raised in the peer-review report, identifying the low lying / affected areas of the coastal wetlands, and including a seasonal flow analysis to assess the impacts of the stormwater flow on the existing EEC.

One public submission was received from the owner of the neighbouring property and the adjoining coastal wetlands to which the stormwater would discharge to. While the submission supported the development, it advised that no consent would be granted for increased rates of stormwater discharge on to the coastal wetlands. The submitter indicated that recent modelling in the immediate demonstrates that there is no capacity for increased flow volumes onto its land.

Applicant's response to stormwater assessment and concerns

In response to the above concerns, the Applicant's SRTS included an updated hydrology report which noted that:

- there is minimum four month drying period (less than 2ML/month) for the existing and developed scenario but runoff volume from the development in both the scenarios is highly variable.
- the location of localised depressions cannot be determined due to difficulties in obtaining topographic survey information in the wetland.
- the hospital footprint accounts for only 2 per cent of the entire catchment that drains to the wetland. The increase in runoff from the site is therefore negligible when considered in the context of the entire catchment inflows. The available data indicates that the wetting and drying sequence is unlikely to impact the hydrologic cycle of the wetland.

The hydrology report concluded that the likelihood of a negative impact on sensitive vegetation communities from changed inflows associated with the development is minimal. The Applicant reiterated that further harvesting measures cannot be proposed due to geotechnical limitations on the

slopes of the land. For this reason, the design of the retention basins was amended in the RTS to provide impermeable basin liners rather than punctures in the lining.

The Applicant's RTS also advised that owners' consent is not required for the proposed discharge from the site to the wetlands, considering established principles of the Land and Environment Court, as the stormwater would finally discharge on to a watercourse or a wetland. The discharge is considered lawful and there is no requirement for owner's consent in this regard. As such, the BMP also states that the storage volumes of the converted basins have been modelled to ensure that the combined post development discharge from the basins is no greater that the pre-development flow. The preliminary DRAINS model confirms that there is no increase in the total site discharge rate in the 5-year and 100-year ARI storm events, although the BMP notes that there would be changes to the flow regimes, which would need to be managed.

No specific concerns were raised by Council or EESG in their review of the RTS. Correspondence from a member of the community raised concerns regarding the hydrology assessment and the adverse impacts of the stormwater system on the coastal wetlands.

Department's assessment of the stormwater flows and impacts

Alluvium reviewed the SRTS and concluded that:

- the proposed stormwater harvesting measures aim to restrict the post-development flow volume from the site into the coastal wetlands to 2ML/month, during the dry periods of the year. However, this is greater than the existing flow from the site during the dry periods and may result in reducing the span of a dry period currently experienced by the coastal wetlands. As discussed earlier, reduction of the dry period would have a direct impact on the habitat of the EEC within the coastal wetlands.
- in order to ensure that the span of the dry periods is not reduced further due to stormwater flows from the site, additional harvesting strategies to capture stormwater should be proposed within the site. This would also minimise additional stormwater flows into localised depressions within the coastal wetlands.
- the modelling results indicate that groundwater recharge within the site would be reduced from 18 ML/yr to 12 ML/yr. The Applicant relies on groundwater being recharged within the coastal wetlands due to stormwater flows, rather than the site itself. Additional infiltration measures should be proposed to allow for groundwater recharge within the catchment of the site as well.

The Department has reviewed the advice from the public authorities and Alluvium (See **Appendix D**). It considers that the proposal satisfactorily addresses the water quality impacts and water quantity impacts during major rainfall events. However, the system would result in material changes to the overall annual surface water flows, surface flows during minor events (especially during dry periods), groundwater flows, and their relationship to the long-term health and longevity of the EECs in the coastal wetlands.

If the flow changes are not managed, the development may result in a significant impact on the biophysical, hydrological and ecological integrity of the coastal wetlands, resulting in non-compliance with Clause 11 of the Coastal Management SEPP. The Department also notes that the cumulative impacts of this development and future developments in the catchment (if allowed) may increase discharge volumes by 50 per cent over existing conditions and have considerable impact on the coastal wetlands over a long period of time. In order to address the above concerns and to ensure an acceptable outcome for the wetland ecosystem, the Department recommended has conditions, based on Alluvium's advice:

- prior to the commencement of the stormwater management works, additional analysis of changes to the seasonal flows draining from the site to the wetland during the August to November period (dry period) should be undertaken (the condition includes references to methods of modelling).
- the analysis should focus on the Swamp Sclerophyll Forest on Coastal Floodplains Forest vegetation community adopting a reference duration of 60 days for evaluating changes to low flows.
- demonstrate that the proposed measures for stormwater harvesting (such as the 400 kilolitre (KL) capacity rainwater tank) and evapotranspiration are sufficient to intercept runoff from the impervious areas of the site.
- should the analysis conclude that there would be additional flow volumes to the coastal wetlands on the site during the dry periods (such as an average of 50 to 100 cubic metres / day between late August to late November) not be satisfactorily managed by the proposed measures, the stormwater management system must include additional stormwater harvesting measures (such as submerged zones in biofiltration basins, ornamental ponds, fountains, permeable paving and passive raingardens).
- any additional proposed harvesting measures must incorporate techniques that would facilitate groundwater recharge within the catchment of the site (supported by advice from a geotechnical engineer).

Conditions addressing stormwater runoff during construction and stormwater system maintenance have also been recommended.

The Department is satisfied that the additional hydrology analysis and the implementation of the recommended stormwater harvesting measures would ensure that the seasonal flows into the coastal wetlands (especially during the dry period) are not significantly altered / increased due to the development. This in turn would reasonably maintain the biophysical, hydrological, and ecological integrity of the coastal wetlands, consistent with Clause 11 of the Coastal Management SEPP. Subject to the implementation of the additional stormwater management measures, the proposal would also ensure that the stormwater flows into the catchment are not significantly increased, thereby not compromising the ability of adjoining lands to be developed and drain into the coastal wetlands.

Dam infill

The Stage 2 works include filling/rehabilitation of the existing redundant farm dam in the site's north-west corner. Backfilling of the dam is proposed to prevent weed infestation and return this part of the site to its natural state in accordance with the methodology detailed in the BMP.

EESG reviewed the proposal and recommended that the infill operations be staged over a period of days to allow for adequate salvage of animals from the dam. EESG recommended the use of turtle / yabby nets to capture and relocate animals that may be missed through the electro fish / gill net operations proposed.

The Applicant has agreed to update the BMP to implement the procedure in the dam filling operation.

The Department is satisfied that subject to the implementation of the BMP, the dam infill would have a positive impact on the ecological integrity of the coastal wetlands.

Provision of koala food trees and measure to protect koalas

The Department's assessment of the TVH Concept Proposal noted the location of an area of potential koala habitat (as defined by SEPP 44) at the north-eastern boundary of the site, although no koalas

were detected by scat surveys. The assessment concluded that the vegetation in this section would be retained and therefore no significant impacts on koala habitat were envisaged. However, conditions were recommended to require the provision of koala food trees on other parts of the site to facilitate fauna movement and improve potential koala habitats.

The Stage 2 BDAR also demonstrates there would be no significant impact to the koala habitat on the site, considering noise, light spill, dust, and construction impacts.

As required by the TVH Concept Proposal, and to address concerns raised by Council and EESG, the RTS included further details on the provision of koala food trees on the site, noting 42 new koala food trees are proposed to be planted, including trees in proximity to the previously identified habitat.

EESG and Council were satisfied having regard to the koala habitat information. EESG recommended some additional measures to assist with mitigating other potential impacts to koalas, including koala crossing advisory signage and restrictions on fencing.

The Department notes the measures recommended by EESG are already outlined in the BMP. The Department considers that satisfactory measures have been proposed to protect the existing habitat, provide new koala food trees on the site, protect koalas during construction and operation. The Stage 2 application would, therefore, result in no additional impacts to koala habitat or potential impacts to koalas beyond those already assessed. It would rather incorporate measures to mitigate and offset impacts of the proposed development. The application is assessed as satisfactory against SEPP 44.

The Department notes that SEPP 44 was repealed in early 2020 and replaced by State Environmental Planning Policy (Koala Habitat Protection) 2019. However, pursuant to its savings and transitional provisions, this SEPP does not apply to the Stage 2 application. Consequently, it has not been considered in the Applicant's or Department's assessment.

Provision of stepping-stone habitats and raingardens

The TVH Concept Proposal required that the BMP include information on installation of the 'stepping-stone' habitats and rain gardens within the site to improve threatened species connectivity lost due to the ongoing construction works on the site (identified as a direct impact in the Stage 1 BDAR). The Applicant's EIS advised that the vegetation buffers, garden bed plantings and bioretention basins would together aim at providing a stepping-stone approach to habitat connectivity. However, details of the habitat were not provided.

EESG raised concerns regarding absence of the stepping-stone habitat on the plans. In response, the RTS included some additional landscaping to tree clusters in the lawn areas to further increase the amount of such habitats. Addendum ecology advice in the RTS considered proposed arrangements to be satisfactory.

EESG did not raise any concerns with the proposed stepping-stone habitats, following submission of the RTS. The Department is satisfied that the proposal incorporates bioretention basins, vegetation, plantings, and habitat areas in a stepping-stone arrangement which would assist with facilitating fauna movements across the site in accordance with the intention of the TVH Concept Proposal conditions.

Recommendations in the BMP

As noted above the BMP would provide the construction and operational framework for the proposed development in relation to management and offsetting of identified impacts on biodiversity and coastal wetland. EESG reviewed the BMP, during the EIS exhibition and recommended the following updates:

- inclusion of details about the proposed translocation of stinking cryptocarya *Cryptocarya foetida.*
- deletion of the proposed introduction of Duckweed and Azolla to the site to suppress growth of Salvinia (an aquatic weed).
- inclusion of additional information in relation to pet restrictions.
- provision of further details on monitoring and reporting on the Mitchell's land snail during and post construction works.

The Applicant noted the recommendations an indicated that the BMP would be updated prior to commencement of construction works. The Applicant's RTS included additional information on the proposed translocation and pet control and reiterated that the BMP outlines the monitoring and reporting arrangements on the Mitchell's rainforest snail.

In response, the EESG recommended that the BMP be updated prior to commencement of construction works.

The Department is satisfied that subject to conditions as discussed above, the Stage 2 BDAR and BMP incorporates appropriate measures to ensure the long-term protection of existing environmental values on the site, as well as rehabilitation and mitigation measures to protect and improve biodiversity outcomes.

Impacts of aviation operations

A Noise and Vibration Report and an Aviation report were submitted with the Stage 2 application and included an assessment of impacts of the noise from the hospital operations on the local biodiversity. The RTS included an updated Aviation report to further consider the impact of helicopter movements on potential locations for flying fox camps, and other sensitive habitats near the site (**Figure 45**).

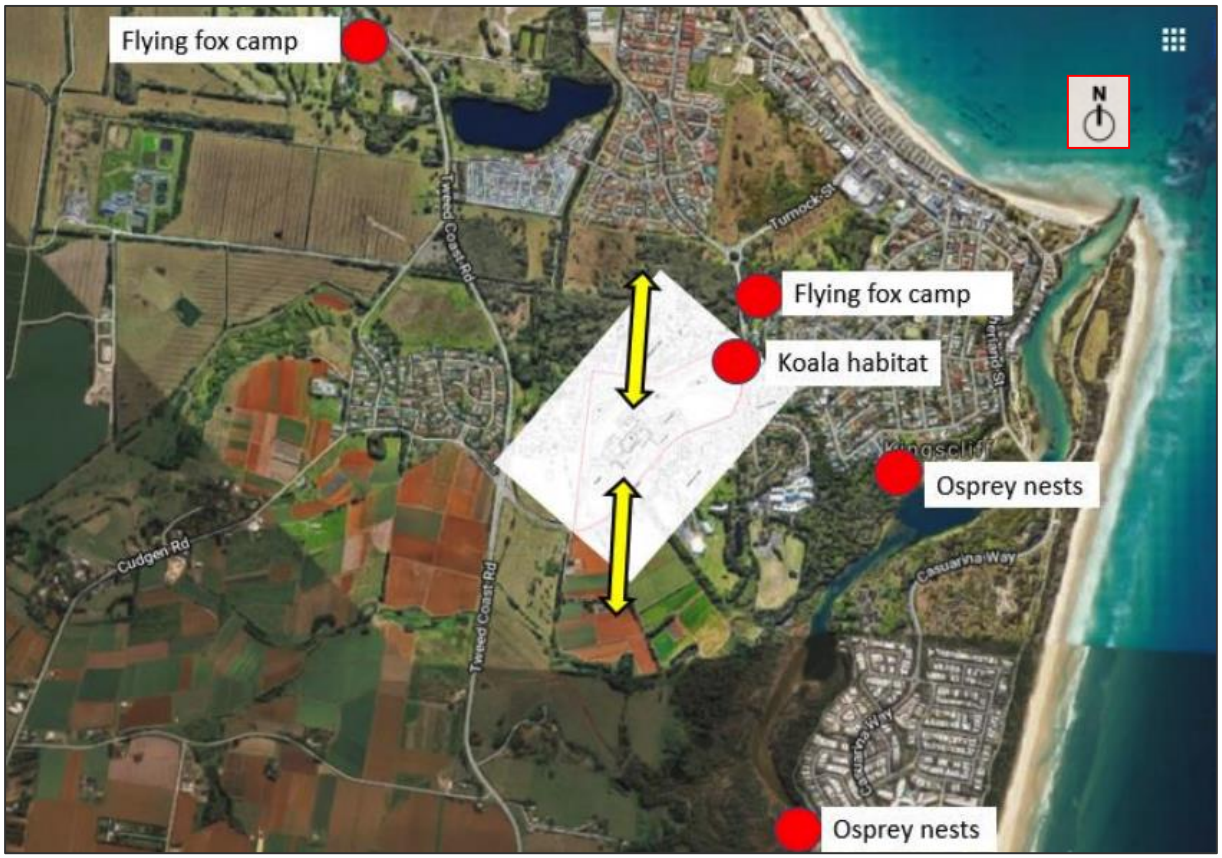


Figure 45 | Illustration of flight paths relative to known habitats (Source: Applicant's RTS)

The reports found that the proposed elevated (rooftop) helipad would have a positive effect in reducing noise and vibration to the surrounding environment as compared to an on-grade helipad. The overall noise impacts would not be significant given the limited number of movements anticipated per month (six – ten) and short timespan for each movement (six minutes of noise).

The Aviation report noted that although there is known koala habitat close to the site, koalas have a very high tolerance to helicopter and aircraft noise. Therefore, no concerns were raised regarding potential impacts to the koala population. The Stage 2 BDAR did not identify any adverse impacts on biodiversity from helicopter operation noise.

The Aviation report identified known flying fox camps, osprey nests and koala habitat and demonstrated these areas could be avoided by the proposed flight paths to avoid damage (due to wildlife strike) and maintenance issues. In addition, it is expected that helicopter movements would predominantly occur during the daytime and would avoid peak periods of flying fox activities.

EESG advise that the updated Aviation report satisfactorily includes measures to avoid and minimise impacts on flying foxes and Ospreys.

Based on the above comments, the Department is satisfied that the proposed helipad and associated helicopter operations would not result in unacceptable impacts on biodiversity, either from noise or potential for bird strike.

6.5 Traffic and transport

Existing conditions and planned upgrades to local road network

The site fronts Cudgen Road, a collector road connecting Kingscliff to the east and Tweed Coast Road, a regional road to the west, which provides connection to the Pacific Highway. Other than adjacent to the TAFE entrance and Turnock Road roundabout, this section of Cudgen Road does not include kerb and guttering but does accommodate a shared user path for pedestrians and cyclists along the frontage of the site.

Due to a range of major residential developments approved or proposed for the region (including Kings Forest development to the south of the site and the Gales-Kingscliff development north of the site), a significant increase in traffic movements is expected in the area in the future. To cater for these impacts, Council's Tweed Road Development Strategy (TRDS) has identified several network capacity upgrades in the area including:

- four-lane upgrade of Tweed Coast Road between Pacific Highway and Casuarina.
- new local east-west connection roads, including intersection improvements.
- improvements to the Pacific Highway / Tweed Coast Road interchange.

Funding for these road upgrades is to be provided by Council's Section 7.11 Contributions Plan. The Applicant has advised that Council is in the process of planning the four-lane upgrade of Tweed Coast Road and is applying for funding grants to assist with the delivery of the works.

Operational traffic and required mitigation

The Stage 2 application is supported by a Traffic Impact Assessment Report (TIA) detailing the traffic impacts due to the proposed hospital. For the purpose of traffic assessment, the proposal considers that the hospital would accommodate 391 beds and 1120 staff in 2023. The number of beds is

proposed to increase to 443 with 1300 staff in 2033. The hospital may accommodate up to 499 beds and 1330 staff post 2033 (subject to future expansion in Stage 2B).

The TIA has considered the traffic impacts of the hospital upon opening (in 2023) and upon full development (in 2033). Due to the location of the site close to Kingscliff TAFE and Kingscliff High school, peak background movements in the vicinity of the site tend to occur around 3pm to 4pm, and therefore expected peak movements from the site also coincide with local afternoon commuter peak period. The TIA estimates that when fully developed in 2033, the hospital would have a likely traffic generation of 5894 vehicles per day, including:

- 742 vehicles per hour during peak staff changeover times (between 3pm-4pm).
- 654 vehicles per hour during the typical evening commuter peak (between 5pm-6pm).
- 304 vehicles during the morning peak (8am-9am).

To accommodate the additional traffic movements and access requirements of the hospital, the proposal includes the following external road upgrades (details discussed later):

- Tweed Coast Road / Cudgen Road intersection upgrade.
- new signalised Cudgen Road intersection (future Access B in **Figure 7** and **46**).
- left in access / turning lane on Cudgen Road (future Access C in **Figure 7** and **46**).

These works are generally consistent with the roadworks assessed and approved by the TVH Concept Proposal and are in addition to other approved access points, Access A and D (**Figure 46***).*

Impacts to all adjacent and nearby key intersections, including the major intersection of Pacific Highway / Tweed Coast Road and the proposed new / upgraded intersections was assessed using SIDRA modelling. The modelling results demonstrated that with the exception of the Tweed Coast Road / Cudgen Road intersection, the other identified intersections are expected to operate at level of service (LoS) A in 2023 (year of opening) and 2033, accommodating the background traffic in conjunction with the forecast development traffic (background + hospital traffic).

For the Tweed Coast Road / Cudgen Road intersection, the modelling demonstrates that in 2023 the existing intersection would operate at LoS E in the AM peak, and LoS D in the PM peak (poor levels) with the forecast background traffic only. However, with the upgrades to the intersection proposed by the Applicant, the intersection would operate with a satisfactory level of service (LoS C), for both the AM and PM peaks, including development traffic. Thus, the proposed upgrades would mitigate the impacts of development traffic and improve the forecast background traffic operations in 2023.

However, in 2033, when the hospital is fully developed, peak hour traffic movements generated by the hospital would increase from 602 peak hour movements (in 2023) to 742 peak hour movements. Background traffic movements would also increase, resulting in a reduction in the performance of the operation of the Tweed Coast Road / Cudgen Road intersection. Further, the Applicant modelled the intersection performance in 2033 considering the four-lane upgrade to Tweed Coast Road by Council. The traffic assessment finds that the intersection would operate at LoS D in the AM and PM peaks, but that overall delay and LoS would be within acceptable performance limits.

The Applicant also notes that this modelling considers Cudgen Road to be the major east-connector road in the area. However, subject to the implementation of the TRDS, additional east-west links are likely to be delivered by Council (or others) by 2033. Upon delivery of these links, traffic volumes on Cudgen Road are expected to decrease by around 30 per cent, resulting in substantially less vehicle movements through the intersection and improving its overall performance.

During the EIS exhibition, TfNSW (RMS) raised a number of concerns regarding the Stage 2 traffic assessment, inconsistent modelling results, delays and queuing lengths between TVH Concept Proposal and Stage 2, lack of plans and sources for the modelling data. TfNSW (RMS) also sought confirmation whether the current signal phasing / cycle times or an optimum cycle time have been used to achieve the future performance limits for the intersections. Council raised no concerns about the traffic generation due to the additional hospital capacity, or the traffic impacts of the proposal. The Department raised concerns regarding inconsistencies between the background / design traffic modelling results in the TVH Concept Proposal TIA and the Stage 2 TIA.

Community submissions raised concerns that the proposed number of beds in the traffic assessment is inconsistent with the proposed 545 beds within the site. The staff numbers were also noted as inconsistent in various documents.

In response, the Applicant's RtS indicated that the intersection modelling data had been sourced from RMS Traffic Control Site Plan (traffic signal details of nearby intersections). The Applicant confirmed that SIDRA optimum cycle times have been utilised to model the intersection for Tweed Coast Road / Cudgen Road and that the design traffic volumes calculated for the Stage 2 are based on the proposed beds and the extent of intersection upgrade works. The Applicant also confirmed that the intersection upgrade works have been proposed in consultation with Council and TfNSW (RMS). The Tweed Coast Road / Cudgen Road intersection upgrade would be commensurate with Council's ultimate plans to widen Tweed Coast Road a four-lane carriageway in the future.

The Applicant's RTS also provide clarification regarding the adopted number of beds for traffic assessment. The RTS indicated that the EIS outlines indicative estimates of job creation attributed to the proposal, based on a full time equivalent (FTE) jobs, which includes work performed on a 24-hour basis over a seven-day roster. The TIA outlines the approximate number of staff that would be on-site at any one time during the day shift in year 2023 and in year 2033. It is standard practice that traffic assessments consider the number of staff likely to be on-site at any one time, not the entire employed workforce.

Council and TfNSW (RMS) have raised no concerns regarding traffic generation and intersection performances, following submission of the RTS.

The Department notes the community concerns in relation to inconsistent bed numbers. As discussed earlier, the traffic assessment relies on progressive increase in number of beds from 391 to 443 and then to 499 with 1330 staff (subject to future funding and expansion). The traffic sensitivity analysis has been undertaken considering the maximum number of beds and staff. The total of 545 beds is calculated including the 46 emergency treatment spaces, which would also be provided on the site. However, for the purpose of traffic generation, RMS guidelines do not include emergency treatment spaces. The Department also agrees with the Applicant's argument regarding the staff numbers.

Based on the Applicant's Stage 2 traffic assessment and the comments from public authorities, the Department concludes that the proposed hospital would not result in significant impacts on the surrounding road network, subject to the implementation of the intersection upgrade works to Tweed Coast Road / Cudgen Road. The Department considers that any deteriorations to the performances of the identified intersections between 2023 and 2033 would likely be attributed predominantly to increased background traffic due to population change and other development in the area.

Council's planned road upgrades would assist with mitigating traffic impacts of this population change and would ensure the Tweed Coast Road / Cudgen Road intersection operates at a satisfactory LoS

in the long-term. The Department notes that the timing and delivery of these upgrades is a matter for Council and not within the scope of this application. The need for the roadworks relates primarily to traffic increases from other sources, rather than any direct impacts generated by the hospital.

Car parking

The proposal includes provision of up to 1538 on-site parking spaces, including the multi-deck carpark, at-grade and short-term parking facilities, which is in excess of the requirements of TfNSW (RMS) guidelines for parking and Council's requirements. A minimum of 1201 spaces would be provided upon commencement of operation (likely in 2023). The Applicant advises that a paid parking scheme for the site is being considered but a final decision on parking fees has not been made.

The total number of car parking spaces on the site is consistent with the terms of approval of the TVH Concept Proposal (as modified).

Council reviewed the EIS and supported the provision of car parking on the site, subject to recommendations regarding accessible parking spaces. However Council and public submissions raised concerns regarding the paid parking scheme and indicated that this may result in increased parking on the adjacent street network, resulting in time restrictions for on street parking and nearby public carparks in the future. One submission supported paid parking as it would reduce use of the parking by other users not associated with the hospital. Council requested that any paid parking scheme be implemented in consultation with Council to ensure no adverse impacts to adjacent residences or businesses.

Some public submissions suggested that car parking spaces on the site be made available for alternative uses, particularly on the weekends or out of usual business hours. Submissions also suggested that parking be provided underground.

In response, the Applicant advised that underground parking on the site cannot be provided due to specific security policies in relation to the hospital. The Applicant also advised that the final parking management plan for the site including parking fees would be developed in consultation with Council. No specific response was provided regarding sharing of parking with the community for other uses.

In its review of the RTS, Council maintained its concerns regarding the paid parking scheme.

The Department is satisfied that the proposed amount of car parking would be sufficient to cater for the expected demand generated by the hospital. The Department acknowledges that a paid parking scheme on the site may encourage some visitors and staff to use free on-street parking in surrounding areas. However, a paid scheme would also have a beneficial effect of encouraging use of alternate transport options.

The impacts of a paid parking scheme could be managed or mitigated through the implementation of a parking management plan which may include varied provisions for varied needs of staff, long-term and short-term visitors, and concessions. Resulting off-site impacts can be managed by Council by imposing time restrictions on the car parking on nearby streets, with special provision for residents, where needed.

The Department has recommended a condition that any paid parking scheme be implemented in consultation with Council. Additional conditions relating to car parking design and provision of accessible spaces have also been recommended.

Sharing of the car parking with other community uses can be developed through the car parking management plan, however this has not been assessed as part of the application as it may impact on the traffic flows within site, which would be is use 24 hours, seven days a week. The Department does not consider that this is relevant to the application.

Internal roadwork, intersection and infrastructure design

The Stage 2 application includes a comprehensive internal road network to cater for the development with four vehicular access points (Access A, B, C and D), described in **Section 2** and in **Figure 46**.

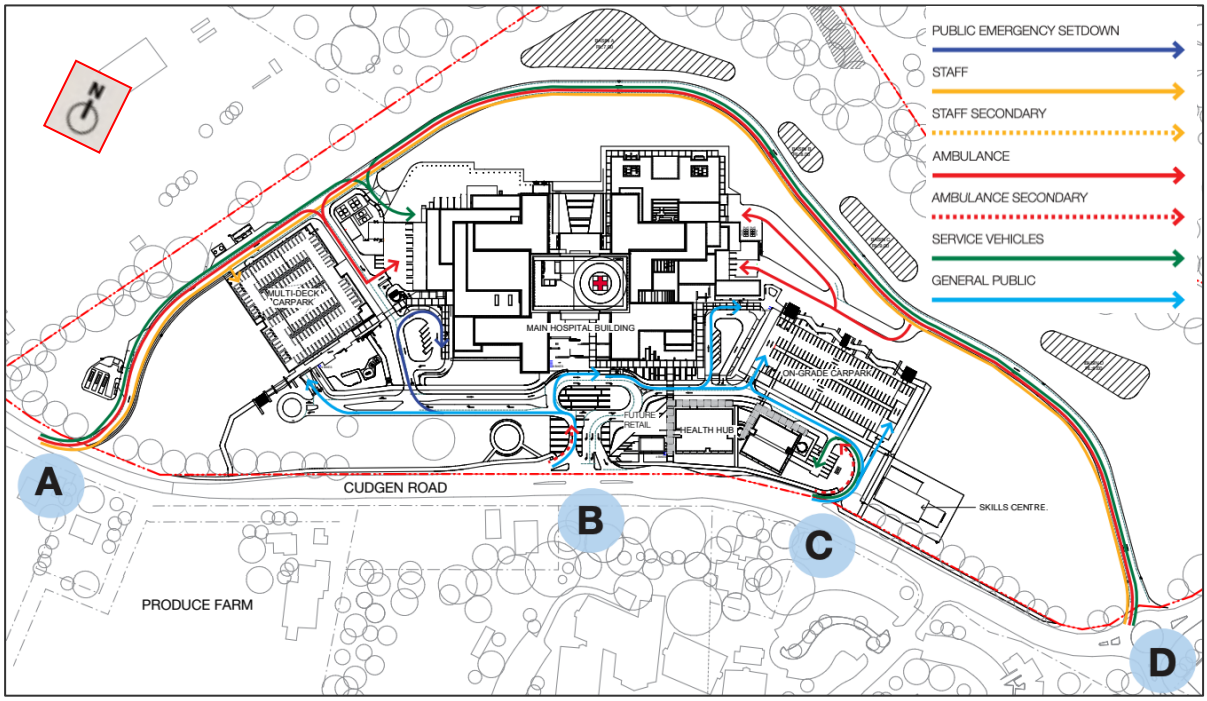


Figure 46 | Internal road network and vehicle movement (Source: Applicant's EIS)

The access points are consistent with the TVH Concept Proposal. Access A and D have been delivered under the Stage 1 works. The main elements of the internal road network are:

- a roundabout for the internal road layout on the western side of the site which would allow for vehicles to return without entering the multi-deck carpark.
- limiting all staff access to via entry A and D and public access limited to B and C only.
- removing public vehicle movements from the internal service ring road.
- drop-off / pick-up zones and emergency car parking areas on either side of the hospital.

Council reviewed the EIS and advised that the service vehicle access, pedestrian access, and alternate transport linkages are acceptable and have been designed in consultation with Council. Council recommended that drop-off / pick-up zones should be located near medical services and have appropriate time restrictions to allow for escorting patients. Council also recommended that a skybridge should be provided connecting the multi-deck carpark with the hospital.

TfNSW (RMS) raised concerns that increased movements at future Access D would adversely impact on the merging traffic at the roundabout accessing the Kingscliff TAFE. TfNSW (RMS) also raised concerns regarding vehicular conflict within the internal layout, especially adjacent to the main entrance during peak hours, and resultant internal queuing lengths were assessed as unsatisfactory.

In response, the Applicant's RTS indicated that the internal road layout within the site has been designed for peak traffic and the queue lengths for future Access D are reduced by introducing double-right turn lanes within the site. This would be sufficient to cater for the additional traffic at this intersection due to modifications to the vehicle circulation pattern. The SIDRA modelling for Stage 2 demonstrates that the site access intersection (future Access B and Access D) would have acceptable LoS, therefore no further adjustments are needed. The Applicant's RTS also indicated that a skybridge link may be provided in the future, however an at-grade connection with high quality public realm treatments is a preferred option.

Council and TfNSW (RMS) raised no further concerns following review of the RTS. Council maintained its request for the skybridge.

The Department notes that the proposed internal circulation pattern for the vehicles approved in SSD-9575-MOD-2 (modification to the TVH Concept Proposal). The Stage 2 internal vehicular movements align with this approval. Based on the public authority comments, the Department is satisfied that the proposed internal road layout and vehicle movements would not result in significant adverse impacts on site access intersection and would encourage safe pedestrian and vehicular movements within the site.

Tweed Coast Road / Cudgen Road intersection

The Tweed Coast Road / Cudgen Road intersection upgrade is identified in **Figure 47**.

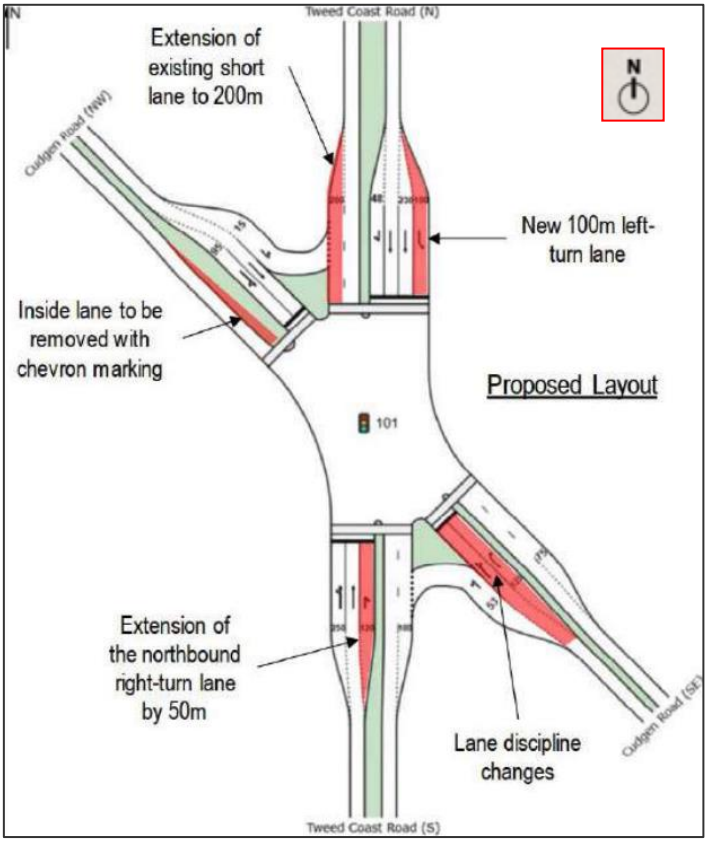


Figure 47 | Indicative changes to Cudgen Road / Tweed Coast Road intersection (Source: Applicant's EIS)

The works 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.
- an extension of the northbound right turn on Tweed Coast Road from 95m to 145m.

TfNSW (RMS) originally raised some concerns with design of the intersection and the proposed storage lanes. Council confirmed that the proposed design was commensurate with Council's TRDS and the Applicant has consulted with Council regarding these works. Conditions were recommended by Council, regarding the physical works.

One submission from an organisation requested that the intersection design be amended to enable traffic approaching from the north to do a U turn at the intersection to enable access to a future park that may adjoin the site. A public submission raised concern that the intersection design may result in road widening and acquisition of private land.

The Applicant's RTS satisfactorily provided clarification to TfNSW (RMS) comments. In response to the community submissions, the Applicant advised the intersection has been designed in consultation with Council and TfNSW (RMS) and a U-turn facility is not considered necessary for the hospital.

No further concerns have been raised by TfNSW (RMS) regarding the intersection design.

Based on advice from public authorities, the Department is satisfied that the intersection design is acceptable and would result in improvements to the surrounding road network and accommodate the hospital traffic. The Department also agrees that provision of a U-turn is not within the scope of this application. The Applicant does not propose to acquire any residential property to widen Tweed Coast Road. The Department has recommended conditions to facilitate the physical design of the intersection in consultation with Council.

Upgrades to Cudgen Road

Proposed upgrades to Cudgen Road as part of the Stage 2 application are provided in **Figure 48**.

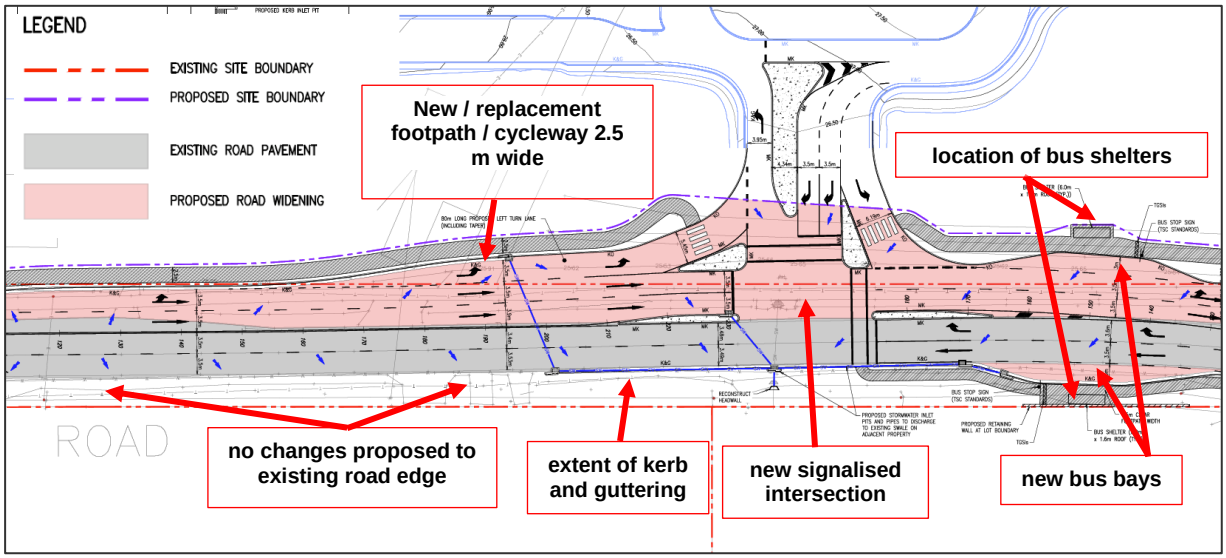


Figure 48 | Signalised intersection on Cudgen Road (Access B) (Source: Applicant's RTS)

The works include:

- a new signalised intersection on Cudgen Road: (Access B).
- a secondary access point off Cudgen Road (Access C) located east of the signalised intersection and comprising an inward only entry with left turn slip lane.
- associated public road infrastructure including road widening works (as needed), construction of two new bus bays and bus stops at the main entrance, kerb and guttering.

The TIA assessed the proposed roadworks, including measures to manage and mitigate safety impacts arising from the proposed layout. The proposal includes upgrade of the road reserve on the northern side, along the site's frontage.

In its review of the EIS, Council recommended upgrades to Cudgen Road on both sides along the site's frontage from Tweed Coast Road / Cudgen Road intersection to Kingscliff TAFE. Council also noted the need for upgrading the existing pedestrian and cycle pathway on Cudgen Road and recommended conditions regarding the design of the two new bus bays on Cudgen Road with footpath connections and a pedestrian refuge.

TfNSW (RMS) initially raised some concerns with design of the signalised intersection, including the length of the left-turn lanes into the site and the close proximity of Access C and Access B. However, following clarification provided by the Applicant with the RTS, TfNSW (RMS) raised no further concerns regarding the proposed design. Conditions regarding an independent Detailed Design Road Safety Audit of the proposed pedestrian facilities and bus stops on Cudgen Road, further approval requirements for signalised intersections and consultation requirements with NSW Ambulance Service were recommended by TfNSW (RMS).

The Applicant agreed to TfNSW (RMS) conditions. In response to Council's recommendations, the Applicant advised that upgrades to Cudgen Road would be undertaken along the full site frontage and on the southern side in conjunction with the new intersection up to the existing kerb associated with the Kingscliff TAFE. No kerb and guttering or other roadworks are proposed beyond this, consistent with Council's previous roadworks in the area. The existing arrangements would maintain the ability for agricultural vehicles to utilise the road shoulder on this part of the road.

The Department is satisfied that overall the proposed roadworks, bus stop / streetlights designs on Cudgen Road would meet the needs of pedestrians, cyclists and vehicles accessing the hospital, subject to detailed design development prior to the commencement of construction. The Department agrees with the Applicant regarding the proposed works on the southern side of Cudgen Road and considers that no roadwork is needed beyond this point, which may adversely affect agricultural vehicle movements. Conditions of consent are recommended to this effect.

Impacts on agricultural vehicles

As required by the TVH Concept Proposal, the TIA includes an assessment of impacts of the hospital traffic on the slow-moving agricultural vehicles in the locality. The TIA advised that the agricultural vehicles on Cudgen Road are infrequent and that further mitigation measures are not warranted to accommodate these vehicles.

DPI reviewed the EIS and recommended that the frequency of movements be confirmed, as a number of rural properties have approvals to operate tractors and machinery on Cudgen Road. DPI recommended a condition requiring ongoing monitoring of the traffic impacts to tractor operations and consultation to identify and implement mitigation measures should this be required. One public submission to the EIS raised a concern that movement of tractors to and from the working farm opposite the site would could result in traffic jams and may impact ambulance movements.

In response, the Applicant's RTS provides further advice that frequency of tractor movements on Cudgen Road is low, as there are limited primary production zoned land to the north-east of the site. There are also opportunities for agricultural vehicles to move off the carriageway onto the verge due to the rural cross section of the road (e.g. west-bound to the west of the site), or for vehicles to pass where additional stand-up lanes are provided such as at the new signalised site access.

The Applicant's RTS advised that on-going monitoring of agricultural vehicles on the public road network, to assess impacts of development in the area, should be undertaken by Council.

The Department acknowledges that there would be some conflicts between tractors on Cudgen Road and the hospital traffic, noting there is a working farm opposite the site. However, the extent of the impact is not expected to be significant, given that the hospital is sited at the eastern edge of the agricultural area with minimum demand for agricultural vehicles movements to the east, past the site. Westbound tractor movements on Cudgen Road, to the west of the site, would have limited traffic impacts due to their ability to move off the carriageway, using the existing shoulder on the southern side of Cudgen Road. There are less opportunities for eastbound tractors to move off the carriageway. However, the relatively short distance of eastbound movements (430m from the single lane section of the road to eastern-most farm), in conjunction with the small number of expected movements, would likely cause infrequent and short-lived disruptions to traffic flow. For these reasons, and due to their ability to routinely navigate traffic obstructions, no concerns are raised regarding conflicts between agricultural vehicles and emergency vehicle movements.

The Department is satisfied that no additional mitigation measures are needed in this regard.

Public transport

To mitigate impacts arising from the site's location away from a main centre and public transport node, to encourage sustainable alternative transport use, and to reduce private vehicle traffic impacts, the terms of approval of the TVH Concept Proposal required that the Stage 2 application include:

- a Green Travel Plan (GTP) including recommendations of the Transport Access and Parking Working Group and target mode shares to reduce the reliance on private vehicles.
- consideration of community transport such as shuttle buses between the Tweed Heads town centre and the site, to supplement the public transport system.
- evidence of consultation with Council and TfNSW to improve the local public transport between Tweed Heads town centre and the site.

The Applicant submitted a draft GTP and draft Transport Access Guide as well as evidence of discussions with TfNSW in relation to improving public transport to the site. The EIS noted planned improvements to the public bus network announced by TfNSW, to be commensurate with the planned hospital location at Kingscliff as well as future residential growth in the Kingscliff region. These (as confirmed by TfNSW) include upgrades to the duration of service for Route 601 (30-minute frequency on weekdays), which would directly connect the site with the existing hospital at Tweed Heads. A new service connecting Murwillumbah directly with Kingscliff has also been planned.

The Applicant also advised that access for community and aged care transport vehicles has been catered for within the site geometry and the site includes a transit lounge with a dedicated drop-off / pick-up zone for patient transport vehicles. The Applicant confirmed that Tweed Byron and Ballina Community Transport would cater for transport to and from the site. This is an existing not-for-profit, community transport provider that provides a range of transport services for older people, people with a disability (and their carers), and disadvantaged people in the community.

Council raised no concerns with the information provided regarding alternate transport arrangements.

TfNSW recommended the preliminary GTP be updated prior to commencement of operation, to address a range of measures including staff shift times, staff travel survey, promotion of higher mode share targets, end of trip facilities and bike parking, communication and management strategies. TfNSW (RMS) also made recommendations for additional measures to be included in the GTP.

Public submissions to the EIS recommended stronger public transport integration with the development and raised concerns that there was no definite timing for delivery of public transport between Tweed Heads town centre and the site.

The Applicant's RTS confirmed that a revised GTP to address the matters raised by TfNSW can be provided prior to occupation of the hospital.

The Department has reviewed the information and is satisfied that the Applicant has made reasonable efforts to introduce alternate and public transport network to cater for the hospital in the future. The new bus stops and community transport movements on site would ensure that appropriate public transport infrastructure is in place on / near the site. The planned upgrade to the frequency of service for Route 601 by TfNSW would ensure that a regular bus service is available between the existing hospital and the site. A condition has been recommended regarding the submission of an updated GTP, as committed by the Applicant.

Construction traffic

The TIA advises that during the various stages of construction up to 250 heavy vehicle movements are expected per day, with the main access routes to be via Cudgen Road, Tweed Coast Road and Pacific Highway. While there may be some traffic disruptions or delays during construction, given the high capacity of these roads, impacts to the operation of the road network are expected to be minimal.

TfNSW and Council did not raise any concerns regarding construction traffic impacts, but TfNSW recommended that the implementation of a construction traffic management plan (CTMP).

The Department has reviewed the impacts of construction traffic and considers that the construction vehicle movements can be accommodated in the road network. Stage 1 works include a detailed CTMP, which has been implemented. Conditions of consent recommend that the Stage 2 CTMP be consistent with the Stage 1 CTMP and include additional mitigation measures, if needed.

6.6 Agricultural offsets

Loss of SSF was a key issue in the assessment of the site suitability for the hospital in SSD-9575, with numerous concerns raised by public authorities and community. In its assessment, the Department considered that an Agricultural Offset Plan (AOP) which listed all proposed offsets and identified the procedures for achieving those outcomes would ensure that impacts could be appropriately offset. Conditions of SSD-9575 required that the Stage 2 application be accompanied by an AOP to offset:

- the adverse agricultural impacts arising from the conversion of the land from SSF.
- the land use risks associated with siting the hospital to adjoining agricultural uses.

An AOP was submitted with the Stage 2 application. During EIS exhibition, Council and DPI raised concerns regarding no clear commitments in the AOP and requested resubmission of the document to include an agricultural offset work plan, including implementation plan.

The AOP was revised in the RTS and SRTS to respond to concerns raised by the Department, Council and DPI. The revised AOP includes measures to mitigate impacts to adjoining properties including continued consultation with neighbours as well as commitments to reuse topsoil and provide for edible gardens on the site. In the AOP, the Applicant commits to:

- working closely with the Tweed Valley Productive Land Use Sub-Committee / Working Group ('the Working Group') to develop with strategies supporting agriculture in the region.
- investigate initiatives such as 'Buy Local Project Northern Rivers', an existing partnership between Lismore City Council, Northern New South Wales Local Health District (NNSW LHD) and the University Centre for Rural Health for the Tweed Hospital.

The Applicant notes that while the hospital project was the catalyst for establishing the Working Group, it is part of a broader government initiative to support agriculture in the region. The Applicant would not be able to undertake, nor is responsible for, all the initiatives of the Working Group. It also advised that while food procurement must be in line with State Purchasing Policies, NNSW LHD could continue and extend local food procurement practices they have in place, and that discussions in relation to working with farmers for local food procurement would be progressed post operation.

DPI reviewed the revised AOP and raised concerns regarding any lack of commitments by the Applicant to undertake physical works or an implementation program. DPI also raised concerns that the AOP does not provide details of a local food procurement strategy as required by the TVH Concept Proposal. DPI recommended that the Applicant enter into a voluntary planning agreement with the required parties to deliver the commitments or a condition be recommended that the commitments are to be delivered prior to the commencement of operation of the hospital.

The Department considers that the revised AOP has appropriately addressed the land use risks associated with siting the hospital adjacent to agricultural uses and has included the required measure of reusing topsoil and providing edible gardens on the site, which make some contribution to offsetting the loss of farmland due to conversion of the site's land use.

The Applicant has taken reasonable steps to comply with the conditions. According to the AOP, the Tweed Valley Productive Land Use Sub-Committee met every few weeks from June to December 2019 and held workshops with local farmers. As a result, it identified opportunities to develop initiatives in relation to diversification, agritourism and skills development. However, a clear program / implementation plan is yet to be established. The Working Group have advised that targeted initiatives would be undertaken in the next steps. The Department therefore considers that a clear commitment in line with the requirement for a strategy of physical works / and or implementation plans / procurement strategies could likely be achieved prior to the commencement of operation of the site.

However, the Department considers that a greater commitment from the Applicant is needed, beyond agreeing to working with the Working Group, to offset the loss of SSF due to the proposed use on the site. While the Applicant is not fully responsible for the implementation of all initiatives arising from the Working Group, the Applicant should take the initiative of implementing or funding some tangible measure/s to offset the loss of SSF land to ensure the intention of the terms of approval of the TVH Concept Proposal is met.

Based on this assessment, the Department recommended that prior to commencement of operation of the hospital, the Applicant must demonstrate that:

- a plan is in place outlining the implementation of the recommendations of the AOP. The plan works should result in tangible offsets to the loss of SSF.

- that a local food procurement strategy is in place for the new hospital or has been developed as far as possible within the constraints of the State Purchasing Policy.

The Department has also recommended that if the above cannot be satisfied, then the Applicant must demonstrate that a direct positive contribution to offset the loss of SSF has been made through funding assistance or carrying out an initiative based on the on the outcomes of the Working Group consultation. Satisfactory evidence in this regard should be provided to the Planning Secretary within two years of commencement of operation of the hospital.

Subject to these conditions, and the measures outlined in the AOP, the Department is satisfied that appropriate steps will be implemented in the long term to ensure appropriate offset measures to mitigate the impacts of the loss of SSF.

6.7 Noise impacts

The EIS was supported by a Noise and Vibration Impact Assessment (NVIA), which identifies sensitive receivers near the site (educational and residential) in three noise catchments (**Figure 49**).

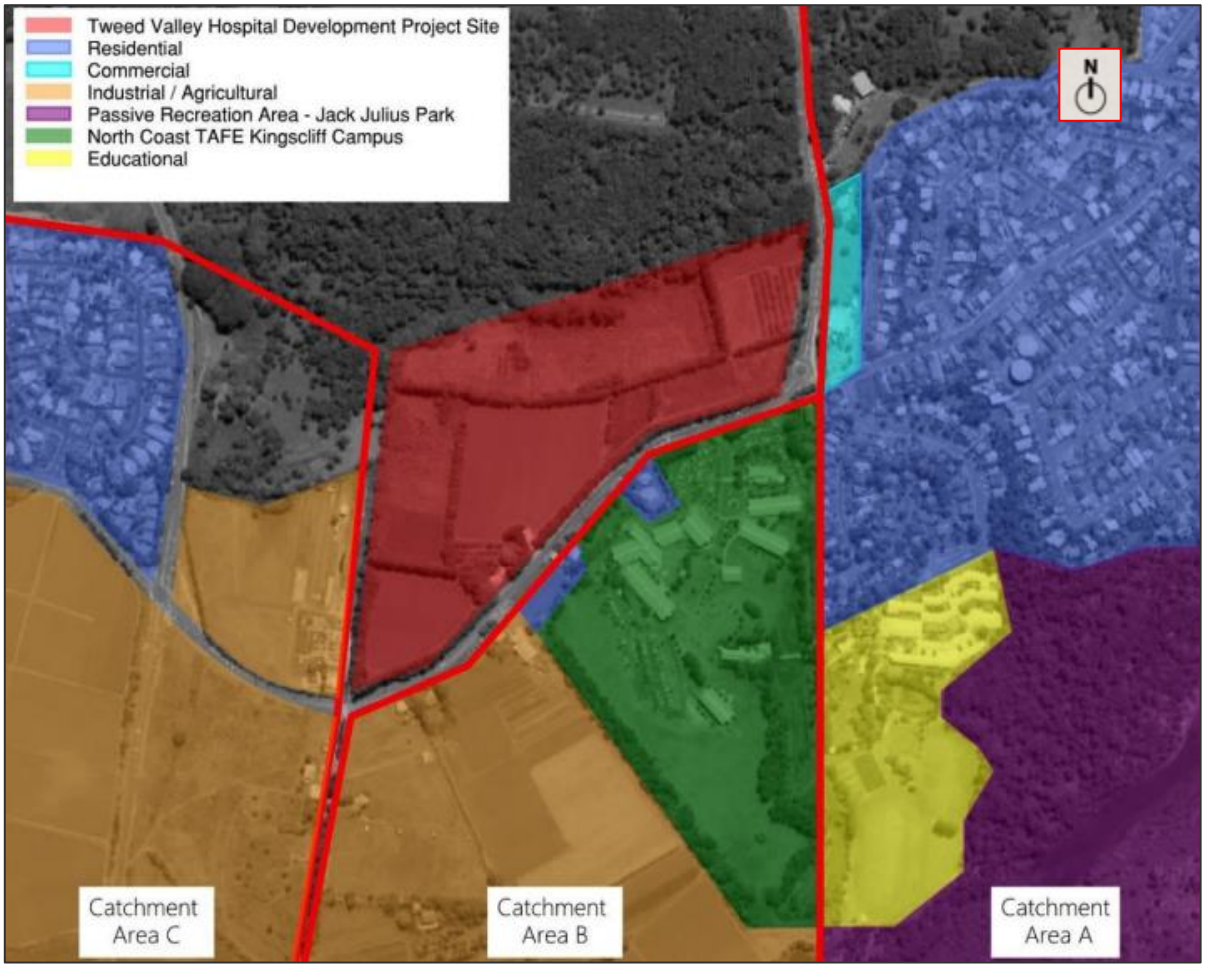


Figure 49 | Location of noise sensitive receivers (Source: Applicant's EIS)

The NVIA includes a detailed assessment of construction noise and operational noise due to the development, as required by the TVH Concept Proposal.

Construction noise

The NVIA establishes the following project specific noise management levels (NMLs) of 55dB(A) for residential catchment A, 57dB(A) for residential catchments B and C, 45dB(A) for educational receivers, 65dB(A) for commercial receivers, having regard to the Interim Construction Noise Guideline (ICNG) and the background noise level at the receiving catchments.

The NVIA advises that construction works are proposed only during standard construction hours and that predicted noise levels associated with the hospital construction would not exceed 32dB(A) at the nearest residential receivers and would therefore easily comply with recommended NMLs.

However, predicted construction noise levels at the Tweed Coast Road / Cudgen Road intersection would be as high as 87dB(A) at the nearest residential receiver, during piling operations. To mitigate and manage the adverse noise impacts, the NVIA recommends: maximising the distance between noisy equipment and residential areas; regular maintenance of equipment; noise compliance monitoring; scheduling works to provide respite periods; and advanced notice to neighbours of planned noisy work.

Neither the EPA nor Council raised concerns with construction noise impacts of the proposal. However, some public submissions raised concern with potential impacts of construction activities.

The Department considers the NVIA provides a satisfactory assessment of the likely construction noise impacts of the proposal, including impacts to residences near the proposed intersection works. The Department acknowledges that road works would result in adverse acoustic impacts to nearby residents but is satisfied that the proposed construction noise management and mitigation measures are appropriate and would assist with reducing noise impacts. The Department considers long term traffic management benefits justify and outweigh the short-term noise impacts of the intersection upgrade.

The Department has recommended that the Applicant prepare and implement a detailed Construction Noise and Vibration Management Plan including management strategies to mitigate noise impacts to sensitive receivers in accordance with the ICNG and consistent with the noise and vibration management measures in the Stage 1 works.

Operational noise

The NVIA identified potential operational noise sources as: mechanical plant; emergency generators; traffic generated by the hospital; ambulance operations; and helicopter operations.

The NVIA found that subject to mitigation measures such as silencers, acoustic louvres and noise enclosures, mechanical plant and emergency generators would not result in any undue noise impacts to nearby sensitive receivers and would be well below the project noise trigger levels established by the TVH Concept Proposal noise assessment.

The NVIA also found that additional traffic movements associated with the hospital would only increase overall traffic noise within the area by 0.6-1.2dB, which is insignificant having regard to the NSW Road Noise Policy. Noise from traffic movements on site and the multi-deck carpark would also comply with the relevant noise criteria and not result in unacceptable adverse impacts to neighbours.

Ambulance sirens would be audible at nearby residential receivers but the NVIA advises that ambulance drivers make a judgment call on whether to use the sirens on a case-by-case basis and minimise the use of sirens when they would cause a noise disturbance and deemed unnecessary.

Noise impacts from helicopter movements to surrounding areas were also assessed as acceptable in the NVIA, noting that the number of movements is estimated to be less than 10 a month, planned approach and departure routes avoid built up sensitive areas, and noise 'events' would typically last only six minutes. Noise impacts to the internal areas of the hospital can be mitigated with appropriate acoustic glazing and façade treatments.

The EPA and Council raised no concerns regarding the operational noise impacts of the proposal. Public submissions raised concerns with potential noise impacts from traffic and vehicle movements, including helicopter and ambulance movements. Community concerns were raised regarding the noise impacts due to the development, with submitters requesting additional noise and vibration studies be undertaken to determine the impacts of the development (during construction and operation) especially the car movements in the multi-deck carpark, on the townhouses located at John Robb Way, to the north of the Tweed Coast Road / Cudgen Road intersection.

The Applicant's RTS reiterated that the NVIA has considered the impacts on the townhouses located in Catchment C of the sensitive receivers, identified in **Figure 49**.

The Department considers that the NVIA demonstrates the hospital could operate without unreasonable noise impacts to surrounding residential areas and other sensitive receivers, subject to design and insulation of plant including generators. The TVH Concept Proposal required that a noise assessment be undertaken to consider the impacts on the residence at 764 Cudgen Road, located on the opposite side of the site. The NVIA considered this property in the assessment and notes hospital noise generation would not exceed the sleep disturbance criteria for this property.

The Department also considers that any short-term noise disturbances from helicopter or ambulance movements would be acceptable noting:

- the very low expected frequency of helicopter movements would ensure that overall noise impacts from this source would not be significant.
- there are no noise control regulations which apply to ambulance sirens.
- the emergency health benefits outweigh and justify any short-term noise disturbance caused by ambulance and occasional helicopter movements.

To ensure other noise is appropriately managed in accordance with the NVIA, the Department recommends that:

- the proposal incorporates the recommended mitigation measures for design and noise insulation.
- short term noise monitoring be undertaken following commencement of operation to demonstrate compliance with noise criterion.

6.8 Other issues

The Department's consideration of other issues is provided at **Table 8**.

Table 8 | Department's assessment of other issues

Issue	Discussion	Findings / Recommended Conditions
Bushfire	• The northern and western parts of the site are mapped as bushfire prone land. • The TVH Concept Proposal required the Stage 2 application to demonstrate compliance with relevant provisions of the PBP and inclusion of an APZ. • Consistent with the above requirements, the Stage 2 application includes a Bushfire Assessment Report. The report concludes that the proposal generally conforms with the principles of PBP, APZ, construction standards and landscaping requirements. • Community submissions indicated that the proposal would encroach within the stipulated APZ for the site. • The RFS supported the proposed development, subject to the implementation of conditions in relation to bushfire safety, compliance with APZ requirements, building construction standards, services, landscaping requirements, and provision of an evacuation / emergency plan.	• The Department notes that the new hospital building is located outside the designated APZ for the site. The Applicant's Bushfire Assessment Report has satisfactory considered and mitigates the bushfire risks associated with the site. • The Department is satisfied that subject to implementation of the conditions recommended by RFS, the development would adequately mitigate against bushfire risk. Conditions have been included accordingly. • The Department's assessment of the appropriateness of rooftop gardens and additional canopy trees within the APZ were discussed in **Sections 6.1** and **6.2**.
Heritage (Historic and Aboriginal)	• The 'Cudgen Sugar Mill Remains', an item of local archeological significance under TLEP 2014, is located on land adjacent to the Tweed Coast Road / Cudgen Road intersection works. • The heritage assessment supporting the TVH Concept Proposal found that the main surviving evidence of the mill (remnants of a former chimney stack) are located outside of the area likely to be impacted by the intersection upgrade works. Consequently, the Stage 2	• The Department has reviewed the proposal and the public authority submissions. The Department considers that the intersection upgrade works would are likely to have no impacts on the adjacent archaeological item. • Notwithstanding, a condition of consent requires the preparation of an unexpected finds procedure that would be

application has not considered any further impact assessment.

- The Stage 2 application was referred to Heritage NSW, who raised no concerns regarding impacts on any surrounding heritage or archeological items.
- The hospital site does not include any listed heritage items. But the Historical Heritage Assessment Report (HAR) submitted with the TVH Concept Proposal identified five dry-stone walls on the site as important physical evidence of early activity on the site, built by South Sea Islander labour. Some mature native trees were also assessed as having potential for heritage significance. The Walls 1 – 5 are identified in **Figure 2**.
- Walls 3, 5 and part of Wall 1 have been removed during the Stage 1 works. Archival recordings have been undertaken prior to their demolition, in accordance with conditions.
- The Stage 2 application proposes to retain the remaining walls on the site and protect the walls with high visibility fencing during the construction phase. It also proposes to reconstruct the demolished walls within key civic / outdoor areas of the site, with appropriate interpretive signage, based on consultation with the local South Sea Islander community.
- The Stage 2 application also identifies that the identified mature native trees are to be retained and protected during construction.
- Council reviewed the EIS and recommended that plans be revised to enable retention of one of the dry-stone walls and that the local South Sea Islander Community be engaged to assist with developing materials.
- Aboriginal cultural heritage was considered in detail as part of SSD-9575. The assessment at that time found that implemented if any archaeological relic is encountered during construction.
- The Department notes that the Stage 1 works assessed the impacts on the dry-stone walls in detail. No other walls are proposed for removal as part of the Stage 2 application.
- The Department is satisfied that appropriate measures have been recommended by the Applicant to protect the remaining walls and trees through the construction and post operational phases.
- The Department supports the proposal to reconstruct the previously demolished walls within key outdoor areas. In this regard, the Department has recommended a condition requiring the Applicant to prepare a Heritage Interpretation Strategy and implement the recommendations prior to the commencement of operation and in the post operational phases (as relevant).
- The Department expects the interpretation strategy to be developed in consultation with the local South Sea Islander community through the detailed design phase.
- Subject to the above measures and recommended conditions, the proposal would ensure retention of the identified heritage values on the site.
- Based on the information submitted by the Applicant and the comments from the public authority, the Department is satisfied the proposed

	the proposed development would not impact on any Aboriginal cultural heritage values of the site. The Concept Proposal conditions required the Stage 2 Application to integrate local Indigenous identity, culture and innovation in design. • The Stage 2 design does not include further Aboriginal cultural heritage assessment as the development would be located within the approved footprint. The Stage 2 application commits to incorporating elements of Indigenous culture by inclusion of an Indigenous meeting zone (a place for Aboriginal visitors to meet or relax). • An Aboriginal and Torres Strait islander working group has also been established to provide two-way consultation and input on the development. • EESG have not raised any concerns in respect of Aboriginal Cultural Heritage impacts. • Council advised that the Tweed Coast Road / Cudgen Road intersection upgrades may require additional assessment of Aboriginal cultural heritage impacts and recommended conditions in relation to unexpected finds protocol.	development would not result in any adverse impacts to Aboriginal cultural heritage beyond that is already assessed in the TVH Concept Proposal. • The Department is also satisfied that the proposal appropriately incorporates Indigenous culture in the design and delivery in accordance with the terms of approval of the TVH Concept Proposal. • The Department has recommended a condition requiring the Applicant to develop an unexpected finds protocol for Aboriginal cultural heritage, to be implemented during the construction phase.
Accessibility	• The Stage 2 application includes an Access Report, having regard to the relevant disability standards. • The report demonstrates that subject to design details being resolved, the project can meet all relevant requirements in relation to disabled access. • Council suggested measures to facilitate accessibility in the drop-off / pick-up zones, design and location of accessible parking and access for buses to the drop-off / pick-up locations. • Community submissions indicate that the staff and visitor lifts should be separated for efficiency of operation.	• The Department considers the plans generally demonstrate access in accordance with Council requirements. • The Department has recommended conditions to ensure the proposal complies with the recommendations of the Access Report and the relevant disability standards. • Subject to the implementation of the recommended conditions, the Department is satisfied the proposal would provide equitable access for all users of the site.

Helipad Design	• As required by conditions of SSD-9575, an Aviation Report was submitted with the proposal to demonstrate that the design of the helipad would be in accordance with CASA and other applicable guidelines and identify proposed flightpaths in consultation with stakeholders. • The report found that the standards applying to the helipad represent best practice and exceed standards required by current legislation. It also concluded that the flight paths would not impact on air traffic associated with Gold Coast Airport and would typically avoid populous areas to minimise impacts. • No public authorities raised concerns regarding aviation.	• The Department has no concerns with the proposed helipad design or helicopter operations. • Associated noise and biodiversity impacts of the helicopter operations were considered in previous sections. • The Department has recommended a condition to ensure the proposal is carried out in accordance with the details and recommendations of the Aviation Report.
Water and Sewer services	• The Stage 1 works involved the augmentation of site services to facilitate the connection of permanent services for the new hospital. The Stage 2 application is consistent with early works and proposes that the facility would be permanently connected to Council's water and wastewater services. • For sewerage, connection to the existing services in Cudgen Road would occur via a private sewerage pumping station. • The location of the sewer pumping station was revised in the RTS and additional information in relation to sewerage management, water and wastewater services was provided in the RTS and SRTS to address Council's concerns in relation to infrastructure. • Additional non-potable water would also be provided through provision of a reuse water tank. • Council confirmed that existing infrastructure in the vicinity of the site can service the development. • Following provision of the additional information, Council advised most of its	• The Department is satisfied the proposal could be adequately serviced regarding water and sewerage. • The Department notes that the revised location of the sewer pumping station and associated overflow tank would be closer to the north-western part of the site which is affected by a range of environmental constraints. The submitted plans indicate that the proposed infrastructure may encroach into these areas. • To ensure compliance with statutory requirements and safeguard environmental values of the site, the Department has recommended a condition requiring the sewer pumping station and tank to be located wholly outside the coastal wetlands area and above the PMF level. • The Department is satisfied that subject to implementation of conditions recommended by

	concerns had been addressed, subject to recommended conditions. • However, Council indicated that the sewerage system had not be designed to adequately mitigate the potential for sewerage overflow during peak wet weather events, with potential associated environmental and health impacts. Council requested that the Applicant design the sewerage infrastructure to Council's and the Water Services of Australia design standards, to mitigate these impacts. • In response, the Applicant advised that peak wet weather flows are likely to be negligible as the system has been designed to limit water ingress and would be tested to confirm this prior to commissioning. • The Applicant also advised that the revised footprint of the infrastructure would not impact on the coastal wetlands area or the flood affected area of the site. • Council reviewed the Applicant's response and recommended that the sewerage infrastructure should comply with Council's standards at the point where it connects to Council's existing public asset.	Council, the sewage system would be designed to mitigate wet weather overflows and managed in accordance with Council requirements and relevant standards.
Developer Charges and Developer Contributions	• The Applicant seeks an exemption from payment of section 7.11 Developer Contributions. • Initially, the Applicant also sought an exemption from Developer Charges in relation to water and sewerage services under section 64 *Local Government Act 1993* (LG Act). • Council noted that the hospital would be exempt from payment of section 7.11 contributions and raised no concerns. • However, Council advised that section 64 charges should be paid for water and wastewater headworks, or otherwise a high consumption usage charge could be	• Based on the significant public benefit provided by the hospital, the Department agrees section 7.11 contributions should not be levied against the development. • The Department has no statutory authority to impose requirements for headwork charges under section 64 of the LG Act and considers that associated payments or charges are a matter for the Applicant and the Council to negotiate separately. The Department considers that the interim

	levied (which is outside the authority of any planning approval). Council requested that the Applicant continue to negotiate fees with Council as the Water Authority. • The Applicant and Council have come to an interim agreement for payments in relation to water and sewerage connections and agreed to negotiate fees and contributions for permanent connections. The details have been submitted with the SRTS in satisfaction of conditions of consent for the TVH Concept Proposal.	agreement and the agreement of both parties to continue to negotiate a permanent solution demonstrates that the site can be appropriately serviced. • Conditions of consent recommend that appropriate approvals be obtained from Council to ensure that water and sewer services are provided on the site prior to commencement of operation. This implies that the Applicant would need pay associated charges to Council, unless otherwise agreed.
Relocation and other social Impacts	• The social impacts of the proposed development and relocation of the hospital from Tweed Heads town centre were assessed under SSD-9575. • Conditions of consent of TVH Concept Proposal requires the Applicant to detail measures to mitigate impacts of the relocation of the existing Tweed Heads hospital, including provision of community health services close to Tweed Heads, community transportation and consultation to improve local public transport. • The Stage 2 application includes a Social and Economic Impact Assessment Report, which includes an assessment of the net community benefits due to this project. • The report concludes there would be impacts on the surrounding communities due to the construction activities, amenity on neighbours, community safety, night-time noise due to emergency vehicles and loss of agricultural land, post operation of the hospital. However, subject to implementation of mitigation measures, the residual impacts would be low.	• The Department is satisfied the Applicant has taken appropriate steps in accordance with requirements of the TVH Concept approval to minimise the impacts to the Tweed Heads community resulting from relocation of the Hospital. • The matters in relation to staff accommodation, police station and fire station facilities are outside the scope of this application.

	• The impacts of construction, amenity impacts, public and community transport initiatives have been discussed in **Section 6.4** and considered acceptable. • The Applicant advises that a targeted communications strategy and community engagement would be developed to address community needs and expectations during the transition phase of the relocation. • The Applicant also confirmed a wide range of community health and other out of hospital services would be provided in the Tweed Heads area after the relocation of the Hospital. • Community submissions indicate the need for staff and visitor accommodation on the site, seek clarification regarding co-location of a fire station on the site and the need for a police station nearby. • The community submissions also indicate that the location of the site would result in increased ambulance response times to some areas. • The Applicant's RTS advised that there are no proposals for staff accommodation or location of a fire station on the site. Ambulance response times were assessed under the site suitability in SSD-9575. The need for a police station is outside the scope of this application.	
Contamination	• Soil contamination matters and the resultant remediation works were undertaken as part of the Stage 1 works. A Site Audit Report has been submitted confirming suitability of the land for the purpose of the development. • Community submissions raised concerns regarding arsenic contamination, inadequacies of contamination assessment and absence of assessment of a cattle dip in the Site Audit Report.	• The Department notes that these matters in relation to contamination were assessed in the Stage 1 works. The Site Audit report confirms suitability of the site. • The Department is satisfied that no further assessment in this regard is necessary.

Signage	• The Stage 2 application includes a comprehensive signage strategy for business identification signs and wayfinding signs. • The architectural plans specify that a range of signs are proposed on building facades and throughout the precinct. Majority of the signs would be internally illuminated, noting the nature of use of the site. • The EIS includes an assessment against State Environmental Planning Policy 64 (SEPP 64).	• The Department is satisfied that the proposed signs are suitable for the use of the site. • Conditions of consent are recommended to ensure that the amenity of the surrounding neighbours is not impacted due to light spill from the illuminated signage. • A detailed assessment against SEPP 64 is provided in **Appendix B**.
Utilities and services	• The estimated maximum electrical load for the site would be approximately 8 MVA. The electrical supply would be run from Cudgen Zone Substation supplied into an incoming switching station within the site at the south-western corner. • The high-voltage network would be supported by up to three standby diesel high-voltage back-up generators, co-located with the switching station. • A diesel tank and pump room would provide the fuel source to the generators. • During the construction phase high-voltage electrical supply would be provided to a temporary kiosk substation and then reticulated around the site to service the site office, subcontractor offices, tower cranes, lifts, lighting and construction activities. Temporary lighting will be provided around the site to ensure a safe and accessible work area. • No specific concerns have been raised by the public authorities about the substation. • Domestic hot water, space heating hot water and air-cooled condensers are in the Level 6 rooftop plant room of the hospital. • The site would include bulk oxygen storage (Vacuum Insulated Evaporator - VIE) and underground bulk Liquid	• The Department notes that the location of the substation is consistent with the SSD-9575 approval. • The substation would be visually screened by the vegetative buffer at the south-western corner. • The Department has recommended conditions to ensure that appropriate approvals are obtained from public authorities prior to installation and operation of the switching station. • The Department has assessed the Applicant's SEPP 33 assessment and considers the risks associated with the storage of gas within the site would be mitigated via the implementation of the proposed mitigation measures and recommended conditions of consent.

	Petroleum Gas (LPG) storage adjacent a lay-by on the west side of the internal ring road, behind the multi-deck carpark. • A hazard assessment regarding State Environmental Planning Policy No. 33 (SEPP 33) has been undertaken to assess the risks associated with the storage of gas, diesel tank, hot water on the site.	
Waste Management	• The proposal includes an operational waste management plan, which outlines the waste management processes, equipment and construction requirements, and identifies the various waste streams and volumes. • It identifies proposed bin and equipment numbers required for the operation of the hospital at full capacity. The main bin room would be located at the basement beside the loading dock. All waste including medical waste would be collected by a private waste contractor.	• The Department is satisfied that appropriate waste management facilities have been provided on the site. • Post occupation, the hospital would include an operational waste management plan to manage collection and removal of waste from the site.
Service vehicle access	• Details of service vehicle access to the site and associated swept paths have been provided. • The largest vehicle required to access the site would be a 19m long Articulated Vehicle for oxygen and gas deliveries. A range of other smaller vehicles would be needed for food, waste, linen and other deliveries. • Council and TfNSW (RMS) raised no concerns regarding the swept path of the service vehicles accessing the site.	• Based on the public authority comments, the Department is satisfied that the swept path and turning areas of the vehicles within the site have been provided. • The vehicular network is designed to separate the service vehicle movements from other vehicles and ensure that forward ingress and egress of these vehicles occur at all times.
Zoning of northern part of the site	• EESG recommended that the northern part of the site be rezoned to E2 Environmental Conservation. • EESG acknowledge that any rezoning would be a separate matter for Council outside the development application, but recommends the Applicant provide a commitment to supporting an E2 zone.	• The Department agrees rezoning is a separate matter beyond the scope of this application. • The northern part of the site is already zoned for Environmental Protection under TLEP 2000. Some limited works associated with rehabilitation of the farm dam that would encroach into

		this area are permissible with consent under TLEP 2000 and would be consistent with the objectives of the both the E2 Environmental Conservation and 7(l) Environmental Protection zones.
Clinical Services	• Several public submissions made suggestions or recommendations in relation to the type or extent of clinical services that should be provided within the hospital.	• This is a matter for the Applicant to consider, who is best placed to determine clinical services within the hospital to meet the community's requirements.

7 Evaluation

The proposed SSD application seeks approval for Stage 2 of the new Tweed Valley Hospital. The development comprises the detailed design, construction and operation of the hospital with associated works and intersection upgrade for Tweed Coast Road / Cudgen Road. 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 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:

- the proposed built form would not be compatible with the existing rural character of the locality; however, the Applicant has included a design that fits within the envelope approved as part of the Concept Proposal and has taken reasonable steps to reduce the impact of the built form on the surrounding locality. The Department has recommended conditions for additional canopy trees to further screen the development and reduce its visual impacts.
- the overall landscaping for the site would promote outdoor open areas for public gathering, optimise viewing decks and address biodiversity conservation through planting.
- biodiversity impacts were appropriately addressed in the TVH Concept Proposal. Additional identified impacts of the Stage 2 application would be due to stormwater flows on to the coastal wetlands. The Department has recommended conditions to mitigate and monitor these impacts.
- an appropriate level of roadworks planning is proposed by the Applicant, in consultation with TfNSW (RMS) and Council, to ensure that necessary road improvements are delivered to facilitate the efficient operation of the future hospital. The roadworks are assessed as satisfactory.
- the Stage 2 application addresses impacts of loss of State significant farmland through the proposed measures that would need to be implemented to offset the loss of arable land.
- the Stage 2 construction noise impacts at the Tweed Coast Road / Cudgen Road intersection can be managed appropriately subject to mitigation measures.
- the operational noise impacts can be appropriately managed through recommended measures.

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:

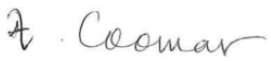
- deliver modern health facilities that would support and deliver current standards for health care.
- provide additional health facilities to support the growing and ageing population in the region and associated increasing demand for public health services.
- include opportunities for further expansion of health facilities without the need to further land acquisition.
- consolidate and provide further investment in public infrastructure in a strategic regional centre.
- generate up to 771 construction jobs per year over 3.5 years and up to 208 new operational jobs.

8 Recommendation

It is recommended that the Executive Director, Infrastructure Assessments, as delegate of the Minister for Planning and Public Spaces:

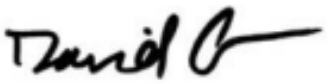
- **considers** the findings and recommendations of this report.
- **accepts and adopts** all of the findings and recommendations in this report as the reasons for making the decision to grant consent to the application.
- **agrees** with the key reasons for approval listed in the notice of decision.
- **grants consent** for the application in respect of SSD-10353.
- **signs** the attached development consent and recommended conditions of consent (**Appendix C**).

Recommended by:



Team Leader
School Infrastructure

Recommended by:



Team Leader
Social Infrastructure

9 Determination

The recommendation is **Adopted** by:

12/06/2020

David Gainsford
Executive Director
Infrastructure Assessments

Appendices

Appendix A – List of referenced documents

1. **Environmental Impact Statement**
   https://www.planningportal.nsw.gov.au/major-projects/project/14746
2. **Submissions**
   https://www.planningportal.nsw.gov.au/major-projects/project/14746
3. **Response to Submissions**
   https://www.planningportal.nsw.gov.au/major-projects/project/14746
4. **Supplementary Response to Submissions**
   https://www.planningportal.nsw.gov.au/major-projects/project/14746
5. **Additional submissions from Public Authorities and community received after close of exhibition**
   Electronic copies of all information provided under separate cover.

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 (SRD SEPP)
- State Environmental Planning Policy (Infrastructure) 2007 (ISEPP)
- State Environmental Planning Policy (Coastal Management) 2018
- State Environmental Planning Policy No. 44 – Koala Habitat (SEPP 44)
- State Environmental Planning Policy No. 55 – Remediation of Land (SEPP 55)
- State Environmental Planning Policy No. 33 – Hazardous and Offensive Development (SEPP
- 33)
- State Environmental Planning Policy No. 64 – Advertising Structures and Signage (SEPP 64)
- State Environmental Planning Policy (Koala Habitat Protection) 2019
- Draft State Environmental Planning Policy (Remediation of Land) (Draft Remediation SEPP)
- Tweed Local Environmental Plan 2000 (TLEP 2000)
- Tweed Local Environmental Plan 2014 (TLEP 2014)

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 Clause 14 of Schedule 1, as it comprises development for the purpose of a hospital and has a CIV in excess of $30 million	Yes

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 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 TfNSW (RMS) would be necessary. Consultation with TfNSW (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 C**).

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 a '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 proposed development on the Coastal Wetland in **Section 6.4** and is satisfied that, subject to the implementation of proposed management and mitigation measures in conjunction with recommended conditions of consent to provide additional analysis and where necessary, additional measures for stormwater harvesting on the site, the proposal will not significantly impact the wetland. Pursuant to clauses 15 and 16, the Department is also satisfied the development is not likely to cause increased risk of coastal hazards and notes there is no certified coastal management plan applicable to the site.

The Department is satisfied that the future development would be consistent with clause 11 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 (SEPP 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.

SEPP 44 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.

Impacts for koalas and koala habitat are considered in detail in **Section 6.3**.

The proposed Stage 2 development is sited within an area of the site that is largely cleared and would not require additional tree clearing beyond that already approved. An updated BDAR was prepared for Stage 2 which also demonstrates that there would be no significant impact to Koala habitat.

A BMP including a Habitat Management Plan has also been prepared which includes mitigation measures to protect existing trees in a potential habitat area on the site. Additional koala food trees are also proposed in accordance with the requirements of the TVH Concept Proposal.

Overall the Department is satisfied that the proposed Stage 2 development would not significantly impact on koala habitat. The Department therefore considers the proposal is consistent with the provisions of SEPP 44.

State Environmental Planning Policy (Koala Habitat Protection) 2019

State Environmental Planning Policy (Koala Habitat Protection) 2019 commenced on 20 March 2020. It aims to encourage the conservation and management of areas of natural vegetation that provide habitat for koalas to support a permanent free-living population over their present range and reverse the current trend of koala population decline.

Clause 15 of the SEPP provides that as the application was made before 20 March 2020, the application must be determined as if the SEPP had not commenced.

Koala habitat impacts have therefore been assessed in accordance with State Environmental Planning Policy No. 44 - Koala Habitat, as in force at the time of lodgement of the application. The Department is satisfied the proposed Stage 2 development would not result in any adverse impacts for koala habitat on the site and the proposal is therefore consistent with the objectives of State Environmental Planning Policy (Koala Habitat Protection) 2019.

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

SEPP 33 aims to identify proposed developments with the potential for significant off-site impacts, in terms of risk and or offence (odour, noise). A development is defined as potentially hazardous and / or potentially offensive, if, without mitigating measures in place, the development would have a significant risk and/ or offence impact on off-site receptors.

Consistent with clause 12 SEPP 33, the Applicant provided a preliminary hazard analysis (PHA) (Appendix AA of the EIS). The PHA identified that the quantities of liquid oxygen would be above the threshold quantities in SEPP 33 and therefore the development is classified as potentially hazardous. The Department has assessed the PHA and concludes it has satisfied relevant Department Guidelines.

The Department notes that the proposal includes safeguards to ensure an off-site risk is unlikely, including location, design, and installation of the oxygen vessels in accordance with the relevant Australian Standards. Notwithstanding, the Department has recommended conditions of consent to further ensure the continual safe operation of the development.

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 TVH Concept Proposal considered contamination issues in detail and approved remediation works as part of Stage 1 to ensure the site is made suitable for the proposed development. A condition was also included on the concept approval requiring that the Stage 2 application to include evidence that the site has been suitably remediated in relation to all identified soil contaminants identified in Stage 1 of the development, that a Site Auditor was engaged throughout the Site remediation and provide a final Site Auditors Report and Site Audit Statement.

The RTS was accompanied by a Site Auditors Report and Site Audit Statement which demonstrate that the remediation works have now been completed and certifies that the site is now suitable for the proposed hospital use.

In accordance with SEPP 55, the Department is satisfied the site has been appropriately remediated and is suitable for the proposed development. A copy of the Site Audit Statement was submitted as part of the Stage 2 application.

State Environmental Planning Policy No. 64 – Advertising and Signage

SEPP 64 applies to all signage that under an EPI can be displayed with or without development consent and is visible from any public place or public reserve.

Under clause 8 SEPP 64, consent must not be granted for any signage application unless the proposal is consistent with the objectives of the SEPP and with the assessment criteria which are contained in Schedule 1. **Table B2** below demonstrates the consistency of the proposed signage with these assessment criteria.

Table B2 | SEPP 64 compliance table

Assessment Criteria	Comments	Compliance
1 Character of the area		
Is the proposal compatible with the existing or desired future character of the area or locality in which it is proposed to be located?	The main identification signs would be visible from the public domain. All signs are appropriate for the character of the site and would not detract from the character of the area.	Yes
Is the proposal consistent with a particular theme for outdoor advertising in the area or locality?	A specific theme does not currently apply to the area, but all new signage has been designed with a consistent theme, providing a unified approach to wayfinding within the site.	Yes
2 Special areas		
Does the proposal detract from the amenity or visual quality of any environmentally sensitive areas, heritage areas, natural or	The signs address the street and public spaces to the south of the building and would not be visible or impact on conservation areas to the rear / north of the site. The signs would be visible from rural	Yes

other conservation areas, open space areas, waterways, rural landscapes or residential areas?	properties opposite the site but are consistent with the urban character of the hospital site and are required to direct traffic to the hospital, including direction to the emergency entrances. The positive outcomes for emergency / wayfinding are considered to outweigh any minor impacts to the rural landscape opposite the site.	
3 Views and vistas		
Does the proposal obscure or compromise important views?	The proposed signs would not impact on any views	Yes
Does the proposal dominate the skyline and reduce the quality of vistas?	The main building identification sign being towards the top of the building façade, would form part of some skyline views, but is not considered to be overly dominant or to adversely affect vistas. The sign is considered appropriate relative to the scale of the building and its purpose as a building identification sign.	Yes
Does the proposal respect the viewing rights of other advertisers?	The proposal would not affect any other advertising.	Yes
4 Streetscape, setting or landscape		
Is the scale, proportion and form of the proposal appropriate for the streetscape, setting or landscape?	The two identification signs would be visible from within the streetscape but would be well setback from the street (65m) and impacts reduced by intervening landscaping. Both signs are appropriate for the size of the site and their purpose and would not detract from the character of the streetscape or setting. Cudgen Road identification / wayfinding signs would be highly visible within the streetscape, however the signs are consistent with the urban character of the hospital site and considered to be appropriate for their setting.	Yes
Does the proposal contribute to the visual interest of the streetscape, setting or landscape?	The signs would complement the hospital design and therefore the visual interest of the streetscape	Yes
Does the proposal reduce clutter by rationalising and simplifying existing advertising?	The signs are simple in design and would not result in visual clutter.	N/A
Does the proposal screen unsightliness?	N/A	Yes
Does the proposal protrude above buildings, structures or	The signs would not protrude above the building.	Yes

tree canopies in the area or locality?		
Does the proposal require ongoing vegetation management?	Some vegetation management may be required for the internal directional signage. This would be managed by the Hospital a part of its routine landscape maintenance.	Yes
5 Site and building		
Is the proposal compatible with the scale, proportion and other characteristics of the site or building, or both, on which the proposed signage is to be located?	The signs are appropriate for scale of the building and the scale of the site.	Yes
Does the proposal respect important features of the site or building, or both?	The signs do not affect any important site features. The building signs have been designed to complement the architecture of the building.	Yes
Does the proposal show innovation and imagination in its relationship to the site or building, or both?	Innovation is demonstrated by the integration of the signs with the building's architecture. However, the purpose of the signs is to identify the site and provide wayfinding and it is otherwise not considered necessary to show innovation in this case.	Yes
6 Associated devices and logos with advertisements and advertising structures		
Have any safety devices, platforms, lighting devices or logos been designed as an integral part of the signage or structure on which it is to be displayed?	There are no associated devices	Yes
7 Illumination		
Would illumination result in unacceptable glare? Would illumination affect safety for pedestrians, vehicles or aircraft?	Illuminated signs are required to ensure visitors arriving at the site can safely and easily find their way. The signs have been designed to ensure glare impacts are minimised whist still maintaining visibility requirements. There would be no adverse impact to the safety of pedestrians, vehicles or aircraft.	Yes
Would illumination detract from the amenity of any residence or other form of accommodation?	The identification / wayfinding signs would be visible from residential premises opposite the site but in the context of other illumination from the site, the surrounding area and streetlighting, illumination from the signs is not considered likely to impact on the amenity of those premises.	Yes

Can the intensity of the illumination be adjusted, if necessary? Is the illumination subject to a curfew?	The signage would not have adjustable lighting and given the 24-hour nature of the use a curfew is not proposed.	Yes
8 Safety		
Would the proposal reduce safety for pedestrians, particularly children, by obscuring sightlines from public areas?	Building signs would not affect sightlines. Directional signage has been located and designed so that it would not result in safety impacts for drivers or pedestrians.	Yes
Would the proposal reduce safety for any public road?	The flush wall signs would have no impact on road safety. The directional and wayfinding signs would improve road safety by clearly directing drivers.	Yes

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 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.

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 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 (**Section 5**). The Department concludes the development is consistent with the relevant provisions of the TLEP 2014 (**Table B3**).

Table B3 | 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 TLEP 2014. However, the submitted HAR identifies five dry sandstone walls with historic significance. Heritage issues have been considered (**Section 6**) and the Department concludes that subject to conditions the proposal will not result in unacceptable heritage impacts.
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 5.12 Infrastructure Development	The Clause provides that the LEP may not operate to restrict or prohibit development by a public authority that is permissible under the ISEPP. As the development is by a public authority and is permissible under the ISEPP, the clauses of the LEP are therefore of limited effect.
Clause 7.2 Earthworks	Development consent is required for earthworks. The application seeks consent for some earthworks on the site, although most required earthworks were assessed and approved as part of Stage 1. Additional earthworks associated with Stage 2 would occur within the existing disturbance footprint and areas established under Stage 1 and therefore would not result in significant additional impacts.
Clause 7.3 Flood Planning Clause 7.4 Floodplain Risk Management	The proposed location of the new hospital and associated buildings and critical infrastructure would be located above the PMF level and the flood planning level.
Clause 7.8 Airspace operation	The proposal does not affect the Limitations or Operations Surface for the airport and therefore there are no requirements under this clause. The application was referred to the Civil Aviation Authority and Airservices Australia who raised no concerns and confirmed the proposed building heights and helicopter operations would not affect airspace procedures or communications and navigation facilities associated with Gold Coast Airport.
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 Gold Coast Airport and its flight paths. The proposed location of the future hospital is outside the GCA flight path and the noise contours. This matter was assessed in detail under SSD-9575.

Clause 7.10 Essential Services	The Department is satisfied that adequate arrangements are made or can be made for essential services to the site. Requirements have been considered by the Applicant in an Infrastructure Management Plan in satisfaction of the TVH Concept Proposal. No issues are raised with respect to service provision other than payment for connection to Council services (**Section 6.8**).

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.

The northern edge of the site is zoned pursuant to TLEP 2000 and includes areas of Environmental Protection 7(l), along with small slivers of 2(c) Urban Expansion and 1(b1) Agricultural Protection). Development within this part of the site is limited to environmental management works associated with rehabilitation of the farm dam as required by the BDAR and consistent with the BMP prepared in accordance with the conditions of the Concept Approval. The proposed works are permissible with consent and consistent with the objectives of the zone they would improve environmental outcomes on the site. In accordance with clause 28 TLEP 2000, the Department is satisfied the proposed works are very minor, would not result in any adverse outcomes for flora and fauna and are consistent with the BMP.

Other policies

In accordance with Clause 11 of the SRD SEPP, Development Control Plans (DCPs) do not apply to State significant development. Notwithstanding, the consideration of the relevant development controls contained within the Tweed Development Control Plan 2008 (DCP) are provided in **Table B4.**

Table B4 | Tweed DCP 2008 compliance table

Tweed DCP 2008	Department Comment/Assessment
A2 – Site Access and Parking Code	The proposal includes parking provisions exceeding the DCP requirements.
A3 – Flood Liable Land	The proposed location of the new hospital and associated buildings and critical infrastructure would be located above the PMF level and the flood planning level.
A6 – Biting Midge and Mosquito Control	Council advised that appropriate consideration has been given to minimise the impacts of mosquitos and biting impacts. The Department has included the conditions recommended by Council.
A11 – Public Notification	Discussed in **Section 5**.
A13 – Socio-Economic Impact	Discussed in **Section 6.8**.
A15 – Waste Minimisation and Management	Discussed in **Section 6.8**.

A16 – Preservation of Trees or Vegetation	Discussed in **Section 6.3**.
A18 – Heritage	Discussed in **Sections 6.8**.
A19 – Biodiversity and Habitat Management	Discussed in **Section 6.3**.

Appendix C – Instrument of Approval

https://www.planningportal.nsw.gov.au/major-projects/project/25461

Appendix D – Independent Consultant advice on drainage

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1 May 2020

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

Dear Aditi

Proposed New Tweed Valley Hospital SSD 10353 – Supplementary review of Hydrology Assessment Report

1 Introduction

This supplementary review completed by Alluvium focuses on the revised Tweed Valley Hospital Hydrology Assessment report (Rev 4) prepared by SMEC dated 17 April 2020 (the 'SMEC report'). Our review focuses on SMEC's response to the key questions on hydrology outlined in DPIE's RFI provided to NSW Health on 2 April 2020 including:

- Are there particular periods / seasons in each of the year where increased wetting due to increased runoff volumes would occur and be detrimental to sensitive vegetation communities?
- How would the distribution of average annual runoff volume to the wetland change post-development considering longer periods (i.e. monthly and seasonal periods such as 30, 60 or 90 days)?
- Are there areas in the wetland where increased runoff volumes would increase the inundation extents, depths and periods significantly?
- Are the vegetation communities in the identified areas (above) susceptible to impacts from increased period of wetting and related reduced periods of drying?
- Would the increase of impervious areas and lower rate of recharge of groundwater within the site impact on the groundwater flow into the wetlands?

Comments on the SMEC response are provided below each question for consideration.

2 Comments on SMEC responses to the RFI questions

Are there particular periods / seasons in each of the year where increased wetting due to increased runoff volumes would occur and be detrimental to sensitive vegetation communities?

How would the distribution of average annual runoff volume to the wetland change post- development considering longer periods (i.e. monthly and seasonal periods such as 30, 60 or 90 days)?

The vegetation in the wetland requires a period of dry conditions for the ongoing plant health and regeneration of species. This is locally provided during periods of higher evapotranspiration relative to rainfall that typically occur annually across the August to November period.

SMEC identified in their earlier assessment that that the mean annual runoff draining to the wetland will increase by over 50% (90 to 140 ML/yr) following development. In the previous assessment, SMEC had not identified if any particular periods/seasons when increased runoff volumes following development would impact significantly on wetland vegetation/habitat.

SMEC has noted that the characteristic weather pattern across Northern NSW includes higher rainfall totals in summer and early autumn leading into a drier winter and spring period. SMEC has noted that there are periods in the rainfall data where high monthly rainfall has been observed in winter and spring, and lower rainfall in late spring and summer. This is to be expected and is characteristic of natural weather patterns at the site. It is considered important to note that monthly rainfall is not directly proportional to monthly runoff as this is also influenced by evapotranspiration which is low in winter and high in summer.

SMEC has modified their earlier assessment to include consideration of monthly flows derived from their MUSIC model. SMEC has identified from their modelling that the highest monthly flows typically occur in the November to March period. SMEC has not identified in their report the period where the lowest monthly flows typically will occur, although discussion on monthly rainfall distribution is provided. Based on data presented by SMEC, it appears that the August to November period is typically when lower flows would occur from the existing site.

SMEC has assumed that an average maximum modelled wetland inflow of 2 ML/month over a 4 month period from the existing site would be representative of a dry period. SMEC has noted that for 10 out of 18 years, there is at least a 4 month 'drying period' where the mean flow does not exceed 2 ML/month. Considering SMEC's modelled monthly flows presented in their report this is not unexpected as their modelling results indicate that existing monthly runoff volumes exceed this flow on average only 2 months each year. It is unclear from their report the reasoning for adopting the 2ML/month as representing a dry period flow. Considering SMEC's modelled flows, it is envisaged that a dry period would align with a much smaller monthly flow from the existing site.

SMEC has concluded (based on a 2ML/month drying flow) that there is unlikely to be any significant change in the coastal wetland floristics considering that the 4 month drying period is achieved for 10 out of the 18 years modelled. If a lower flow was adopted as representative of a monthly drying flow, it is likely considering the same approach adopted by SMEC, that following development the 4 month drying period would be achieved for less than 10 out of 18 years and the typical drying period would reduce.

Alluvium acknowledges that there will always be seasonal flow variability occurring between years. During high rainfall years, the maximum drying period will be shorter when compared to a typical year, whilst during low rainfall years, the drying period will be longer. Wetlands have adapted to this natural variability. Development typically alters this natural variability resulting in a step increase in runoff volume from a site when compared to existing conditions. This results in site runoff increasing for all months following development except in months where rainfall is zero, or runoff is intercepted within the development. This is reflected in SMECs monthly modelling results which show increases in all months except when the existing flow is zero.

Are there areas in the wetland where increased runoff volumes would increase the inundation extents, depths and periods significantly?

Are the vegetation communities in the identified areas (above) susceptible to impacts from increased period of wetting and related reduced periods of drying?

The wetland vegetation is recorded as Swamp Sclerophyll Forest on Coastal Floodplains Forest (*Melaleuca quinquenerva* swamp forest). This is an Endangered Ecological Community (EEC) under the *NSW Biodiversity Conservation Act 2016 (BC Act)* and *Threatened Species Conservation Act 1995*.

This vegetation community requires seasonal dry periods (4 to 8 months) for ongoing healthy growth and regeneration of the understorey and dominant canopy *Melaleuca* species. For this location this is during months of August to November when average evapotranspiration exceeds average rainfall. SMEC acknowledges the presence of this vegetation community and these seasonal drying requirement in Section 5 of their report.

Increases in depth and period of inundation have the potential to reduce plant health and germination required for regeneration of plants such as the M*elaleuca quinquererva*. It is considered that the vegetation of the *Melaleuca quinquenerva* swamp forest will be impacted if the wetland is exposed to increased inundation that prevents seasonal dry periods. The impact of this is most likely in localised depressions within the wetland.

Variations in microtopography within the wetland provide a range of wetting and drying as water flows preferentially to these areas. These areas support diversity in the vegetation community especially in the ground and understorey species. Localised depressions within the wetland will be more impacted by the increased volumes. This will potentially reduce the range of wetting and drying and reduce the diversity in the understory over time. Changes in the wetting and drying can also reduce the opportunity for germination and regeneration of the Melaleuca species.

There is minimal topographical data to determine the distribution and extent of the localised depressions and the potential impact. It is expected that such depressions will be present in the wetland as this is the natural form of such environments. SMEC has indicated that due to limitations in available topographic survey data, inundation extents and depths are unable to be accurately determined. It is agreed, and is our experience, that this if often a challenge when completing this type of assessment, and particularly in circumstances where the wetland is heavily vegetated and a tree canopy existing to restrict collection of reliable LiDAR survey data. Stormwater management strategies for developments draining to coastal wetlands typically aim to mitigate increased flows at the source (i.e. within the development) prior to discharge into a natural wetland to overcome the uncertainty involved with assessing localised changes to wetting depths and extents.

SMEC has assessed that the increased runoff discharged to the wetland from this development is unlikely to result in increased frequency of inundation of lowland rainforest areas situated on slightly elevated land within the wetland extents. Although no mapping of the extents of this vegetation community has been provided by SMEC, it is expected where this vegetation community aligns with the elevated perimeter of the wetland, that increased frequency of inundation of these areas as a result of the hospital development is likely to be minimal. Although, this assumes that the proposed stormwater outlets on the fringes of the wetland do not discharge stormwater directly into, or towards, the unmapped lowland rainforest areas.

SMEC has identified that the coastal wetland that the wetland is likely to be categorised as is a Forest Swamp – Ephemeral wetland (adopting the terminology of McManus et al (2007)). SMEC has identified that for this category of wetland, inundation is typically by freshwater catchment runoff. Typically, these wetlands dry out annually for a period of 4 to 8 months under natural conditions.

SMEC has concluded that increased flows potentially would inundate micro relief areas in the Swamp sclerophyll forest areas downstream of the proposed stormwater outlets. SMEC has assessed that any impacts would be localised and that significant measurable impacts are unlikely. SMEC has included an assessment that outlines areas in the wetland that potentially would experience increased inundation during a discrete 4 EY event following removal of an existing farm dam. This assessment provides some indication of the areas

that potentially would experience increased frequency and depth of seasonal wetting to a higher degree. Figure 4 in the SMEC report identifies these areas.

SMEC highlights that the development site represents only approximately 2% of the catchment area draining to the coastal wetland. SMEC states that the increase in runoff from the development as a proportion of the total runoff draining to the wetland from other catchment areas is negligible. SMEC has assessed that due to the flow contribution from the site being negligible, the impacts of the development on increased inundation depths and extents in the wetland would also be negligible. Whilst we agree that this would be the case for this specific development considered in isolation, it is not considered to be a reasonable conclusion. This same claim could also be put forward by other future development applicants in the catchment. Whilst any individual development considered in isolation may not lead to significant impacts on the coastal wetland, the cumulative impacts of allowing multiple future developments in the catchment to increase discharge volumes by 50% over existing conditions will likely have considerable impact on the wetland. It is considered that consistent principles for managing runoff volumes should be applied for all developments draining to protected coastal wetlands. There are many examples of coastal wetlands along the NSW coast that have historically been exposed to progressively increasing runoff volumes as development proceeds in the catchment. In a number of circumstances this increased runoff has resulted in significant impacts on the natural wetland vegetation.

Would the increase of impervious areas and lower rate of recharge of groundwater within the site impact on the groundwater flow into the wetlands?

Although MUSIC is not a groundwater model, the water balance results from the SMEC model indicate that baseflow recharge within the site would be reduced from 18 ML/yr to 12 ML/yr (i.e. 6 ML/yr) as a result of existing pervious surfaces where recharge currently occurs being covered by impervious surfaces in the developed condition. The SMEC report has provided no discussion on the potential lowering of groundwater recharge within the site, and the impacts on the wetland. The groundwater assessment outlined in the SMEC report focuses on the impacts of increased infiltration on slope stability within the site. Whilst the assessment concludes that infiltration devices would not be feasible due to geotechnical risks, there is no assessment of the impacts of the lower groundwater recharge across the site on the wetland.

3 Development consent condition recommendations

1. The stormwater management system shall be designed to provide additional focus on minimising increased runoff from the development site during the August to November seasonal period. It is envisaged that additional measures to harvest stormwater and increase evapotranspiration through the site will be required to achieve this.

2. Analysis of changes to seasonal flows draining from the site to the wetland during the August to November period shall be completed applying the method outlined in *McManus et al (2007) Water Sensitive Urban Design Solutions for Catchments above Wetlands – Overview Report* (or other method approved by DPIE). The analysis shall focus on the *Swamp Sclerophyll Forest on Coastal Floodplains Forest* vegetation community adopting a reference duration of 60 days for evaluating changes to low flows to demonstrate the effectiveness of any mitigation measures.

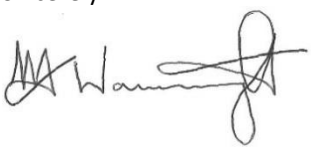
Intent of these conditions:

The intent of these conditions is to provide an increased focus on stormwater harvesting and evapotranspiration within the site to intercept runoff from road and roof surfaces during the seasonal dry period. It is expected that the magnitude of additional flow volumes required to be intercepted would be on average 50 to 100m^3/day (this requires modelling to confirm) across the entire site during the 3 month period from late August to late November. This requirement is above what would be achieved utilising the currently proposed 400 kL rainwater tank (although this rainwater tank could form an integral component of the stormwater harvesting scheme). The intercepted runoff could be managed through opportunities including irrigation of landscaping areas, provision of submerged zone in biofiltration basins, irrigation of biofiltration basin vegetation during dry periods, interception by/topping up of ornamental ponds/fountains, permeable

paving in low traffic areas, passive raingardens (lined to prevent infiltration) installed in carparking areas or along access roads, and other measures distributed throughout the site. The measures would only need to actively harvest stormwater during the seasonally drier late August to late November period when evapotranspiration typically exceeds rainfall. During other periods, it is expected that the coastal wetland would be regularly partially or fully inundated by catchment runoff under existing conditions. It is expected that during these typically higher flow periods, limited benefit to wetland health would be achieved from harvesting stormwater runoff.

If you require any clarification of the above, please do not hesitate to contact the undersigned.

Sincerely



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