



# TWEED VALLEY HOSPITAL DEVELOPMENT

Site Selection

Summary Report

July 2018

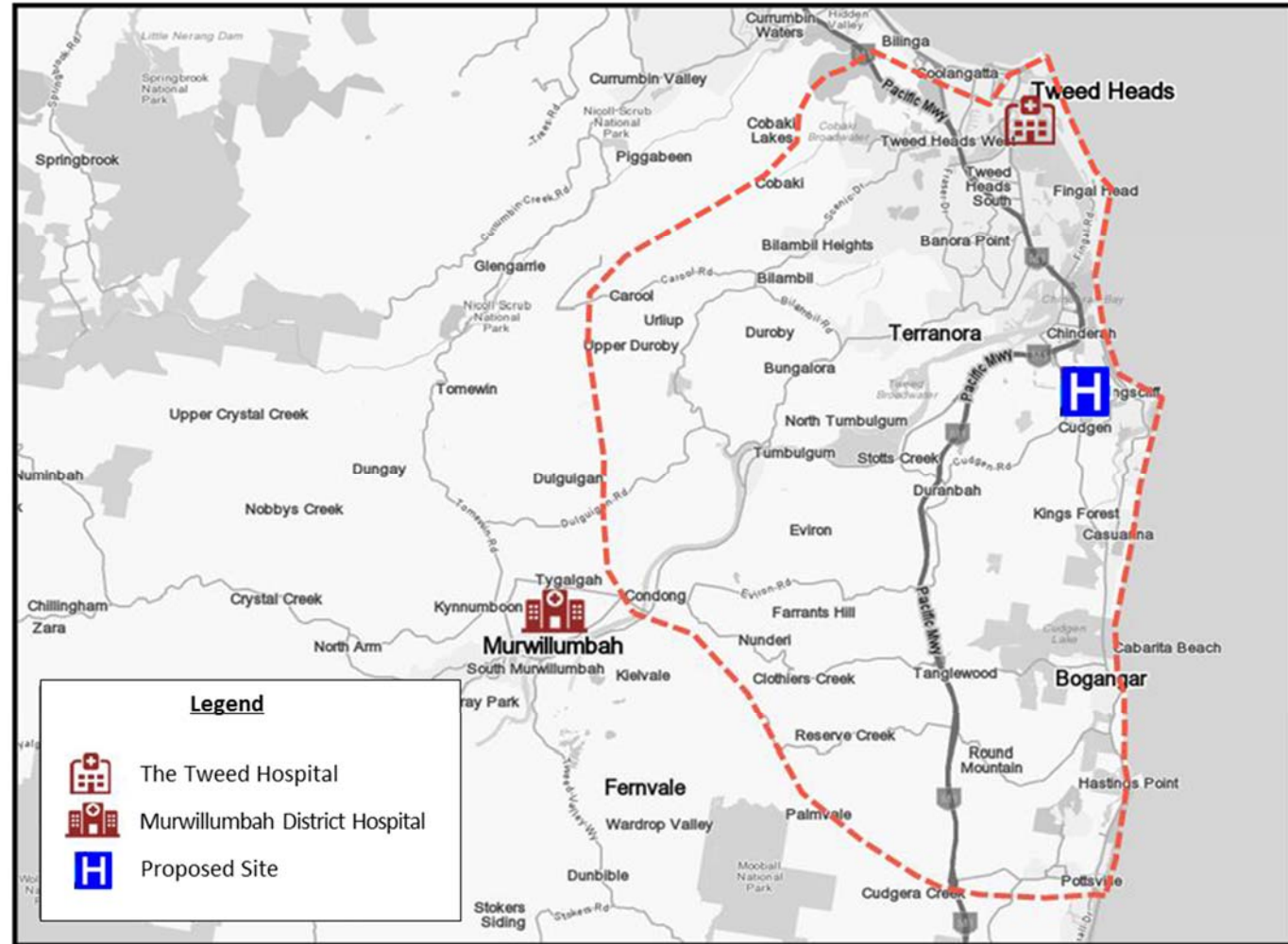
# Tweed Valley Hospital – Site Selection

## A site to build the future of healthcare for the Tweed-Byron region

Selecting the right site for the Tweed Valley Hospital is vital to building the future of healthcare and servicing the health needs of the Tweed-Byron community now and into the future.

Following a comprehensive site selection process, including community consultation and due diligence investigations, the Proposed Site for the hospital has been confirmed on land to the west of Kingscliff at 771 Cudgen Road, Cudgen, opposite Kingscliff TAFE.

Figure 1 – Site Selection Area

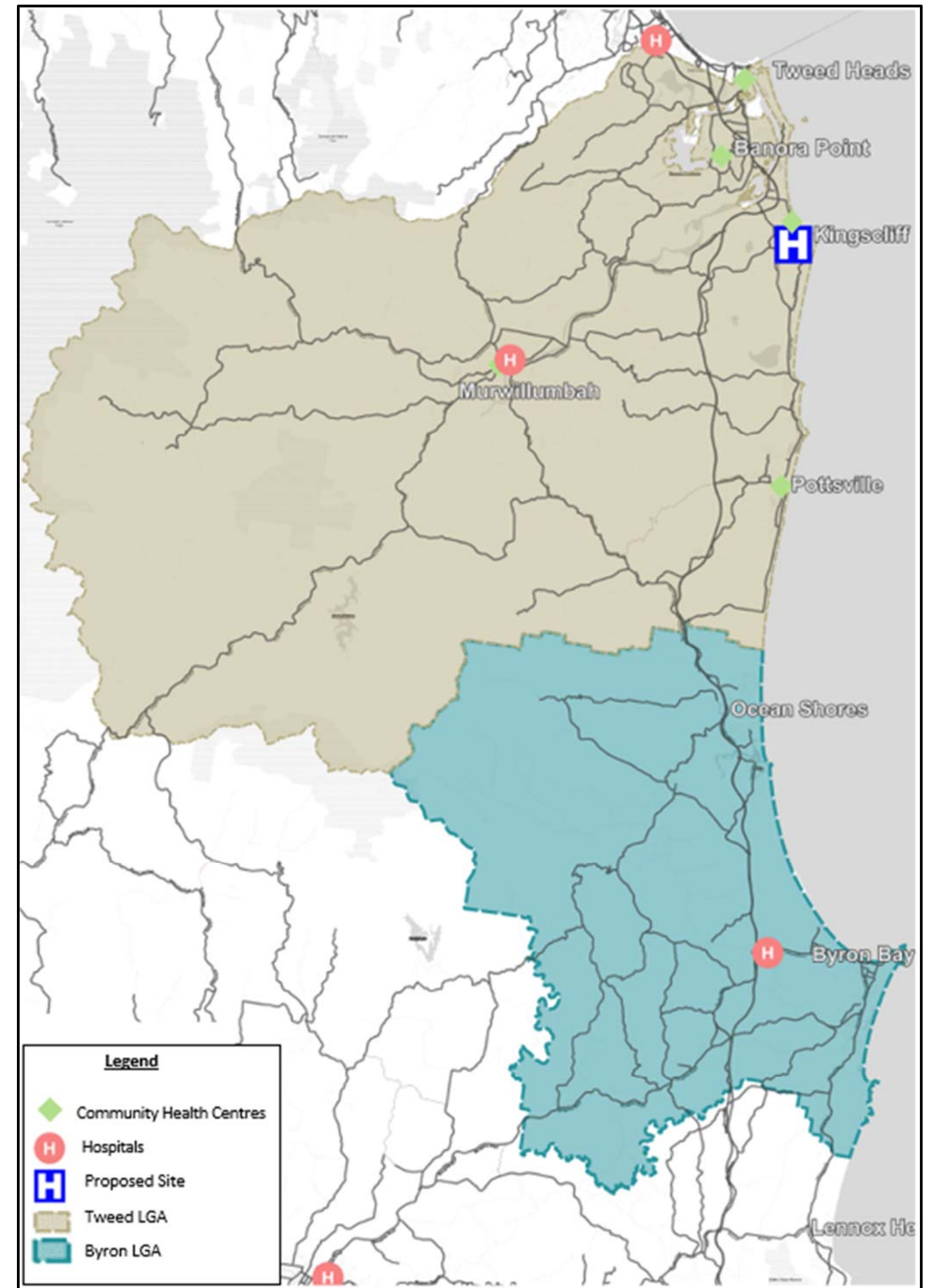


The Tweed Valley Hospital will form the core of the network of hospital and community health centres across the Tweed-Byron region, as illustrated in Figure 2.

Planning the clinical services for the Tweed-Byron health network is continuing, and clinical consultation on the Service Statement (a statement confirming the services required) for the new Hospital will continue through July. This will be followed by development of a network Clinical Services Plan that will confirm how the broader health network will operate in conjunction with the new Hospital. This will include the configuration of community health and other out-of-hospital services that will be provided in Tweed Heads and other population centres across the Tweed-Byron region.

The future of the existing hospital site (The Tweed Hospital) will be considered once the configuration of community health and other out-of-hospital services has been determined, through the network Clinical Services Plan. Existing hospital services provided at The Tweed Hospital will transfer to the new facility once it is completed.

Figure 2 – Tweed Valley Hospital Catchment and Health Services Planning Area



## Background

Northern NSW is one of the fastest growing regions in the State, with Tweed and Byron Local Government Areas (LGAs) the fastest growing areas in the Northern NSW Local Health District (NNSW LHD). In 2011, the total population of the Tweed and Byron LGAs was 119,149. By 2031, this population is expected to grow by 24%, an increase of 28,071 people.

The new major referral hospital will serve the Tweed and Byron LGAs along with networked hospitals at Byron and Murwillumbah and Community Health Centres across the region. Since 2012, a number of clinical services and master planning studies have been undertaken, which have concluded that the existing Tweed Hospital is at capacity and the 4-hectare (ha) site is insufficient to support the long-term healthcare needs of the Tweed-Byron community.

Accordingly, on 13 June 2017, the NSW Government announced \$534 million for a new state-of-the-art hospital on a greenfield site, including an expanded emergency department, inpatient care and enhanced surgical and outpatient services. New services including interventional cardiology and radiotherapy, will also be provided in response to clinical service planning priorities.

The need for the new hospital being driven by:

- The significant forecast population growth in the Tweed-Byron region, and in particular the increase in the ageing population
- The need for the health services in the Tweed-Byron region to be more self-sufficient, to give residents access to more services locally, without travelling outside the region
- The need to implement modern healthcare models, to deliver high quality health services into the future
- The constraints of current infrastructure at The Tweed Hospital, which is at capacity - a program of interim upgrade works has commenced to assist in meeting the needs of the community until the new hospital opens, and services are transferred
- The physical limitations of the existing Tweed Hospital site, which has inadequate space to develop new buildings and access is impacted by flooding.

These drivers strongly support the decision to construct a purpose-built referral hospital on a new site and will ensure that the growing and changing healthcare needs of the Tweed-Byron community are provided for in the years to come.

The project consists of:

- Delivery of a new Level 5 major referral hospital to provide the health services required to meet the needs of the growing population of the Tweed-Byron region, in conjunction with the other hospitals and community health centres across the region
- Master planning for additional health, education, training and research facilities to support these health services, which will be developed with service partners over time. These areas will be used initially for construction site/ compound and at-grade car parking.
- Delivery of the supporting infrastructure required for the new hospital, including greenspace and other amenity spaces, campus roads and car parking, external road upgrades and connections, utilities connections, and other site infrastructure.

The 2017 floods demonstrated that access to the current hospital site is impacted by flooding and the existing and growing population centres to the south of Tweed River become cut off from access to the full range of acute hospital services. This emphasised the need to consider equitable access arrangements, and the advantages of a more central location for the future Tweed Valley Hospital in

relation to the broader Tweed-Byron region. It is noted that residents from areas to the north of the Tweed River would be able to access Robina Hospital within approximately 30 minutes in a flooding event.

Subsequent modelling has also confirmed that the existing hospital would need to be evacuated under a Probable Maximum Flood (PMF) scenario. Flood mapping and further information on the flood planning requirements for a hospital and the relevance of the PMF is attached at Appendix A and B.

## Site Selection Process

More than 50 sites have been assessed in total, including those considered through a publicly advertised expression of interest (EOI) process and those nominated through the subsequent community consultation process.

The site selection process has been undertaken in two phases:

### Phase 1 (August 2017 to March 2018):

35 sites were considered, including around 20 submitted by landowners through the EOI process. Due diligence investigations were undertaken by independent experts (Advisors) and cross-government consultation informed the evaluation process and identification of the Proposed Site at 771 Cudgen Road, opposite Kingscliff TAFE. This was announced by the NSW Minister for Health on 4 April 2018. Information about this process was made publicly available via the previous version of this report, dated April 2018.

The EOI process sought available land suitable for development of the new Tweed Valley Hospital, that:

- Was located within an area extending from Tweed Heads to Pottsville and up to 15km inland, indicated by the red dotted line in Figure 1
- Has a developable area of between 8 and 16 ha
- Is easily accessible and close to a main arterial road link
- Is available for development from late 2018.

Sites were evaluated in both Phases against the same Assessment Criteria in the following categories:

1. Location, Access and Traffic
2. Urban Context
3. Built Forms and Landscaping
4. Environment, Heritage and Culture
5. Time, Cost and Value.

### Phase 2 (April 2018 to June 2018):

Following the announcement of the Proposed Site, in recognition of concerns raised by the local community, the NSW Government directed NSW Health Infrastructure (HI) to undertake a focused six-week community consultation process. During this time, the community was invited to provide detailed feedback on the Proposed Site; as well as identify any potential Alternative Sites to be considered by the project team, for comparison against the Proposed Site.

Consultation events were arranged to hear feedback from all geographic areas within the region at varying times of day. Opportunities included pop-up booths at shopping centres and markets, hospital receptions and staff forums; project office drop in sessions; and the provision of written submissions. An independent communications consultant (Elton Consulting) was engaged to manage this process.

The consultation process was announced at a community forum on 26 April 2018 and submissions closed on 14 June 2018.

Both phases of the site selection process have been overseen by an independent Probity Advisor who has stated that the process has been conducted in a fair and equitable manner with due regard to probity.

### Published Information

The site selection process will result in the acquisition of land by the NSW Government. This procurement process has been informed by information submitted by landowners and investigations undertaken by independent expert Advisors. This information helps build a picture of the development potential of the sites; landowners intentions to develop land (or change current or planned land use) and price expectations; and the price that Government might pay for land. The detail of this information is not typically released as it could be of commercial utility in the marketplace. The procurement process forms part of a deliberative process of Government and typically only summary information is published on the outcomes of such processes.

Careful consideration has been given to the level of information that is appropriate to publish and this report reflects the full extent of such information.

Further details of the Proposed Site, including Advisor reports, will be published as part of detailed planning submissions in due course.

## Alternative Site Assessment Process

This section outlines the assessment process for Alternative Sites nominated by the community, and outlines some of the considerations in making the decision to continue with the Proposed Site.

### » Due diligence

Due diligence refers to the process of investigating a site to assess its suitability and the risks involved.

Technical assessment to inform the site selection process has been undertaken by expert independent Advisors across a broad range of disciplines; including:

- Aboriginal Heritage
- Acoustic
- Architecture
- Aviation
- Bushfire
- Cost Management
- Ecological and Natural Heritage Constraints
- Flooding
- Geotech/Environmental/Contamination/Hazmat
- Health Service Planning
- Surveyor
- Traffic/Transport
- Town Planner
- Topography/Stormwater
- Utilities.

Technical assessment considered Federal, State and Local Government policies, strategies and plans, with Tweed Shire Council's extensive Geographic Information System (GIS) mapping informing the assessment. Advisors undertook due diligence investigations and assessment with respect to their area of expertise and this was reviewed with Council's technical advisory staff.

During Phase 2, technical assessment also included on-site due diligence investigations on the shortlisted Alternative Sites where necessary legal procurement documentation had been executed.

### » Assessment

An initial assessment of all Alternative Sites was undertaken to determine those sites that may provide a reasonable comparison against the Proposed Site. This assessment included consideration of the following aspects:

1. The site is within the site selection area, which is consistent with the original EOI process
2. The site contains a developable area of 8 to 16 hectares, with larger sites preferred and >16 hectares considered
3. The site is easily accessible and proximate to a main arterial road link.

The assessment focused on identifying if there was a high likelihood of a serious risk, issue or deficiency that may make the site unsuitable against any of the Assessment Criteria. If a serious risk, issue or deficiency was identified then the site was not considered to be a reasonable comparison against the Proposed Site and that site was not shortlisted.

The outcome of this assessment was a shortlist of Alternative Sites for more detailed consideration, which was announced by the NSW Minister for Health at a community forum hosted by the Tweed Daily News on Monday 18 June 2018. The shortlisted sites were:

- A site within the proposed Chinderah Business & Knowledge Precinct
- A site at the northern end of Kings Forest Precinct 5
- 121 & 147 Tweed Coast Road, Cudgen.

For comparison purposes, the project team also undertook a design study on a 'brownfield option', which considered acquiring land around the existing Tweed Hospital; building the new hospital; decanting services and demolishing the existing buildings; and then using the existing site for future expansion and complementary uses. This was not a shortlisted option and the comparison study reaffirmed that redevelopment around the existing hospital site was not a viable proposition.

### » Assessment of shortlisted sites

Additional information and activities informed the analysis and assessment of the shortlisted Alternative Sites, including:

- Review and assessment of submissions received through the Alternative Site nomination process by the respective landowners (where provided)
- Verbal and written feedback received from the community on the Proposed Site, and Alternative Sites
- Review of the community and Council Reference Group feedback (refer Consultation section for further information regarding the Council Reference Group)
- Council advice that they were seeking Commonwealth funding support to expand Tweed Coast Road to four lanes for the extent of the road passing in close proximity to the shortlisted sites
- Architectural and site infrastructure analysis, including a draft site layout, access and building massing (the general shape, form and size of buildings)
- Detailed flood modelling (where applicable)
- Comparative order of magnitude costs to assess overall affordability
- Non-invasive on-site inspections by the due diligence Advisors.

The assessment of the shortlisted Alternative Sites considered the advice from the independent expert Advisors on the merits, benefits, risks, issues and deficiencies of each shortlisted site against the Assessment Criteria, and compared to the Proposed Site, as well as feedback from Council's technical advisory staff and the Council Reference Group (refer Consultation section for further information regarding the Council Reference Group).

For the two shortlisted sites that formed part of broader developments, two scenarios were considered, being the hospital development with or without completion of the surrounding developments. This was considered appropriate given that both developments have been in the planning phase for many years but have not yet commenced.

A merit and risk review was undertaken to arrive at a final assessment for each site, to allow comparison against the Proposed Site. The merit and risk review included assessment of the key enablers and risks for delivering the hospital and surrounding developments, in the required timeframe. The planned upgrade to Tweed Coast Road was also considered; noting that while it is not a technical requirement for development of the hospital on any of the shortlisted sites, early delivery would be advantageous. The merit and risk review also considered the additional cost of engineering a suitable level of flood immunity for the Chinderah site and the brownfield option, and it was recognised that this would significantly impact the budget available to build clinical space.

## Consultation

### » Key stakeholder consultation

Consultation with senior representatives of a number of stakeholder organisations was undertaken in Phase 1 as part of due diligence investigations; including:

- NSW LHD Board and Executive
- Tweed Hospital Executive and lead clinicians
- Department of Planning & Environment
- Department of Primary Industries
- Tweed Shire Council
- NSW Ambulance
- Tweed Police
- Fire and Rescue NSW.

During Phase 2, a Tweed Shire Council Reference Group (CRG) was formed, with an invitation to all Councillors, as well as Council senior staff and planning officers. Six of the seven Councillors, including the Mayor, accepted this invitation. The CRG provided the opportunity for all Councillors to be briefed on the consultation process submissions and, in return, provide feedback to the Project Governance. CRG members were also provided access to all supporting due diligence reports and community feedback at the project office on request. CRG feedback was considered as part of the assessment process.

### » Community consultation

Following announcement of the Proposed Site, a six-week period of comprehensive community consultation was undertaken. This consultation process provided opportunities for community members to discuss the site selection process and provide comment on the Proposed Site and nominate Alternative Sites for consideration.

The consultation process engaged with a broad spectrum of the community, ranging from those who were vocal in opposition through to those who were unaware of the project. Consultation events were focused, to hear feedback from all geographic areas within the region and all age ranges at varying times of day. This approach ensured a representative view of the wider community who will utilise the hospital, or who are impacted by the site selection process, through consultation at a time and place that was convenient.

The consultation process was announced at a community forum on 26 April 2018 and submissions closed on 14 June 2018.

### Consultation channels

A wide variety of consultation channels was used, including:

- The project website, including all available information, and how to provide feedback
- Direct contact and meetings with key stakeholders and groups, presenting an overview of Phase 1 of the site selection process, and inviting them to participate in consultation
- A dedicated 1800 telephone number for queries
- Inviting written submissions through the Feedback Form Part A and Part B, utilising the project email address, or the contact form on the website
- Pop-up community consultation sessions at regional shopping centres and markets, hospital receptions and staff forums
- Community drop in sessions at the project office.

Over 1,000 people within the region were directly involved in the consultation either through face to face engagement or through the formal submissions process. Website analytics show higher numbers of community members accessed the information on the project website. The formal submissions indicated a proportionate involvement of the communities across the region.

### Geographic distribution

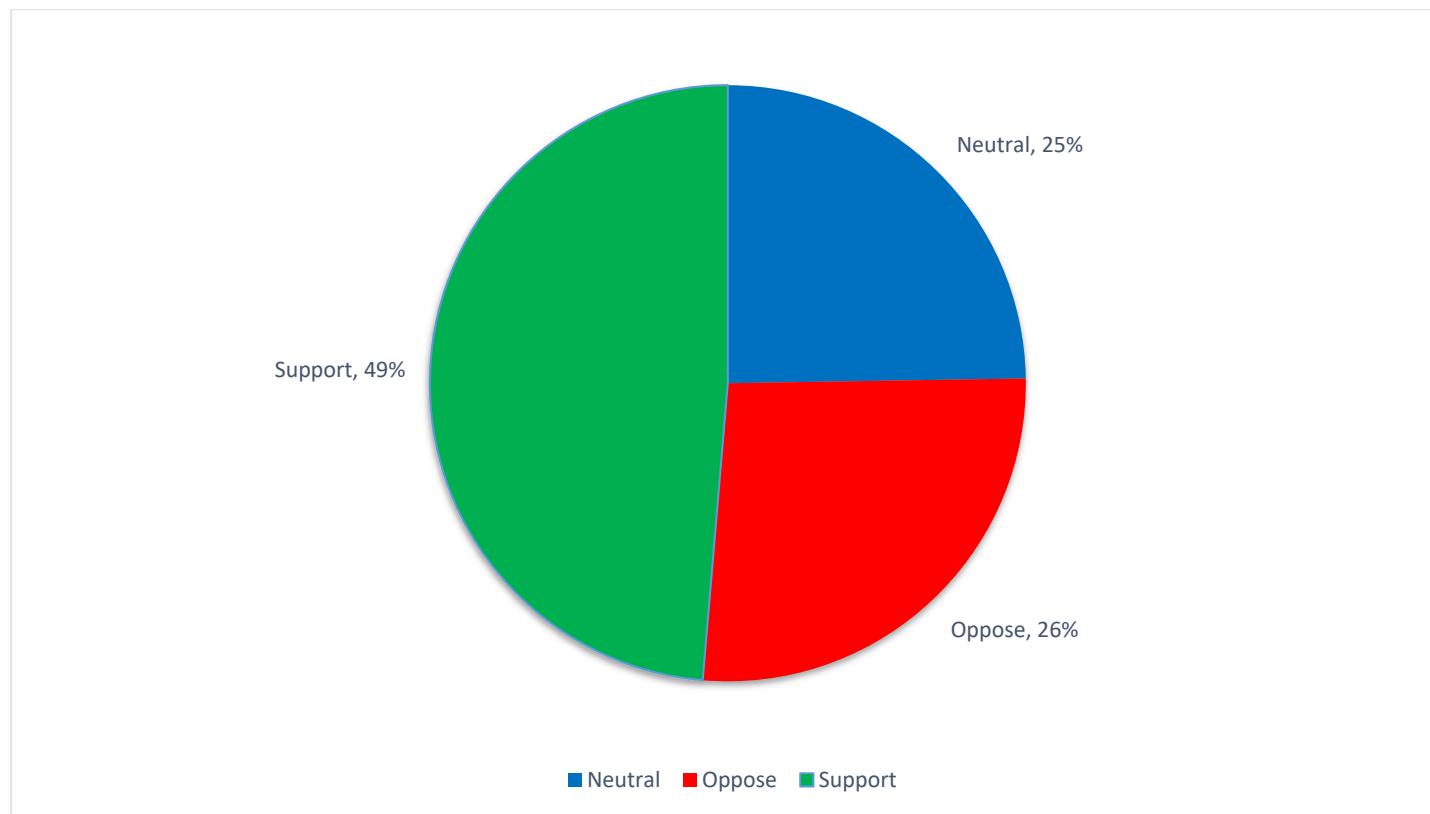
Consultation extended to the main population centres within the Tweed-Byron region including Bryon Bay, Banora Point, Chillingham, Cudgen, Kingscliff, Murwillumbah, Pottsville, Tweed Heads and Uki.

### Consultation outcomes

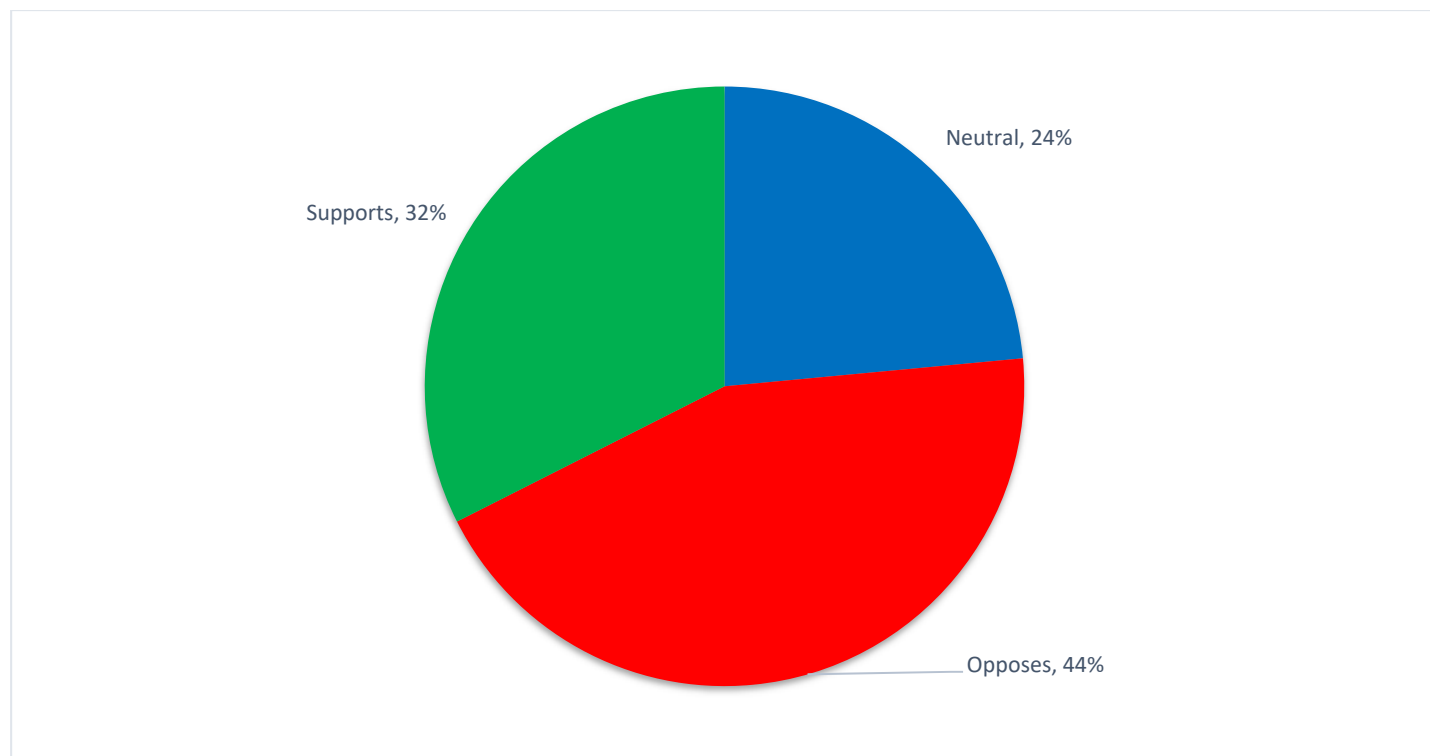
The vast majority of the community supports a new hospital in the region and there is consensus on the need for more healthcare services generally to keep up with growth in the region and an ageing population.

Over 600 people were engaged in discussion at pop-up events, and nearly 700 written submissions were received. Verbal and written feedback indicated that more people were supportive, or not opposed to, the Proposed Site than those opposed, and this is represented graphically in Figures 3 and 4. The consultation process also included a significant number of unsolicited responses offering opinions on the suitability of Alternatives Sites.

**Figure 3: Verbal Feedback at Pop-Ups**



**Figure 4: Written Feedback**



**Key themes**

The following key themes emerged from the consultation process supporting and opposing the Proposed Site:

*Comments supporting the Proposed Site:*

- Supports provision of local employment

- The property is on the fringe of agricultural land, will not interfere with farming, and will not fragment farming
- Good level of access
- Supports proposed growth of Kingscliff
- Well located opposite the TAFE
- Can provide ample parking
- Above the flood level
- Close to public transport
- Close to other urban amenities, such as shops
- Will provide facilities close to residents that people currently have to travel to the Gold Coast for
- A central location
- No bush fire risk
- The land is large enough for expansion
- Want the project team to get on and build the hospital.

*Comments opposing the Proposed Site:*

- The use of State Significant Farmland – this should stay as farmland, if this is used for development what is stopping other farmland doing the same in the future? Concerns also raised regarding impact of farming on adjacent land due to crop spraying restrictions and dust implications.
- It could possibly force the rezoning of other land, which land owners have been trying for years and not been successful
- The site may be flood free but access to the hospital is not
- The site provides no space for further expansion
- The site is too far from the M1
- The development will attract people to the area, and change the character of Kingscliff
- The height and scale of the proposed development is out of keeping with the character of the area
- The site is directly under Gold Coast Airport flight paths and will impact helicopter arrival/departure to the hospital.

The consultation process also identified that a hospital in any of the shortlisted locations, has a range of matters of community interest that need consideration through the planning process:

- Traffic, roads will need to be upgraded
- Noise impact on surrounding residents – both during construction, and operational (ambulance noise, traffic and helicopters)
- Sensitive flora and fauna is critical, and should be preserved
- Parking options – a lot of people don't use hospital parking facilities because they are too expensive, this will make people park on the side of the road/in dangerous areas. Car parking adequacy and affordability needs to be considered during design
- Public transport is a necessity
- Pedestrian access and cycle paths are needed

- Tertiary opportunities should be included
- Concern that the existing Murwillumbah District Hospital will be closed
- The hospital will attract patients with social problems including drug and alcohol
- Post treatment support options to be considered, and mental health support options
- Accommodation options within close proximity need to be considered
- Request for landscape architecture to consider sensory garden and space for families/pets
- Community members feel they can't have a say due to how divisive the site selection has been and the difference in opinions.

### Alternative Sites Nominated

A total of 235 written submissions were received nominating Alternative Sites, including late submissions:

- 28 Alternative Sites were nominated, including expansion of the existing Tweed Hospital site
- 16 were new sites that weren't previously considered, plus the existing Tweed Hospital site
- 23 were within the various site investigation areas considered in Phase 1
- 4 were outside of the site selection area.

When combined with around 35 sites considered through Phase 1, more than 50 sites have been considered in total. The location of all sites considered through the site selection process are outlined in Figure 5.

#### » Privacy considerations

The consultation process enabled the community to nominate sites that they did not own, and it undertook to protect the privacy of nominees and landowners. Accordingly, the nominated Alternative Sites that did not make the shortlist have been grouped in site investigation areas and some of the key considerations for each of these areas are explained in the following table.

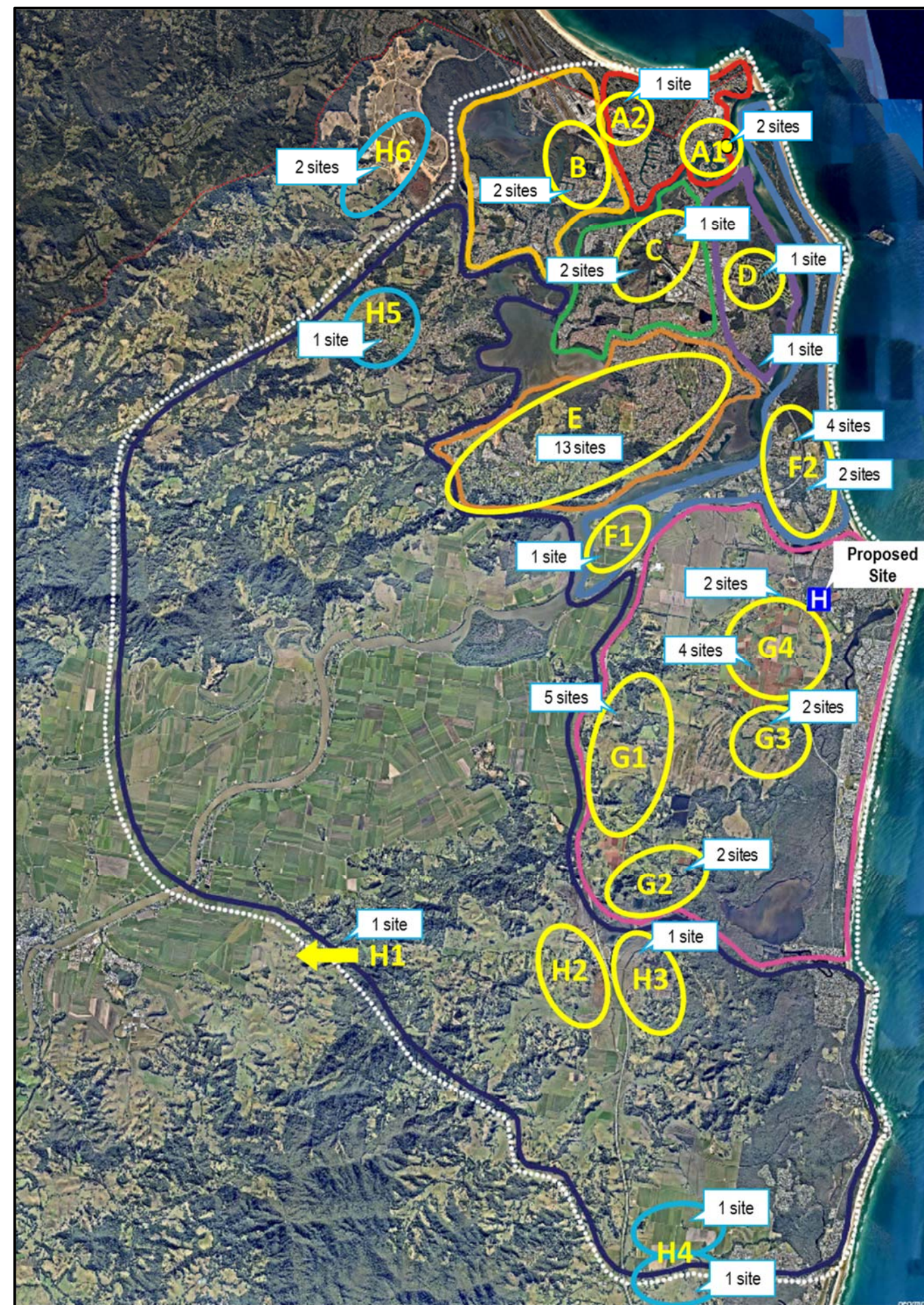
#### » Key considerations for each site investigation area

This section outlines some of the key considerations for each site investigation area, with the labelling in the following table as per Figure 5. It is a summary only and is not exhaustive.

It is important to note that it is the combination of factors that makes a site suitable or unsuitable for further consideration. A good example of this is flooding - just because a site is below the PMF does not mean it is automatically ruled out. For example, it is possible to meet the flood planning requirements through an engineered solution (e.g. increasing the height of the land through importing fill and/or elevated building structure) but with associated cost impacts and potential flow-on implications to surrounding land. Similarly, sites shown in Figure 1 that are located north of the Tweed River were all considered. The inability to access local acute hospital services if the M1 is impacted by flooding was only one of a number of considerations that meant relevant sites were not shortlisted.

The following table covers the sites considered in each of the site investigation areas across both Phase 1 and Phase 2, other than the three shortlisted Alternative Sites, the brownfield option and the Proposed Site, which are each discussed in more detail in the following sections of the report. The overlap between the sites considered in each Phase is indicated by the three numbers in brackets, which are the number of sites considered in that investigation (Total / Phase 1 / Phase 2).

Figure 5 – Alternative Sites Nominated by Site Investigation Area



Investigation Area	Key Considerations
<p><b>Area A</b></p> <p><b>A1:</b> Tweed Heads – 1 site considered plus brownfield option (not covered in this table - refer later section)</p> <p><b>A2:</b> Tweed Heads adjacent to Queensland border - 1 site considered (3/1/2)</p>	<ul style="list-style-type: none"> <li>The site put forward is too small – does not meet the minimum requirements.</li> <li>Existing hospital site (“brownfield option”) is considered in later section of this report.</li> <li>Proximity to airport would require additional coordination of helicopter access, as well as acoustic treatments to reduce impact of frequent aircraft noise.</li> <li>Flooding depth between 2 and 3 metres in a PMF event.</li> <li>Population south of the Tweed River unable to access local acute hospital services if M1 is impacted by flooding.</li> </ul>
<p><b>Area B</b></p> <p>Tweed Heads West – 2 sites considered  (2/2/0)</p>	<ul style="list-style-type: none"> <li>Proximity to airport would require additional coordination of helicopter access, building heights and construction planning, as well as acoustic treatments to reduce impact of frequent aircraft noise.</li> <li>Flooding depth between 4 and 6 metres in a PMF event.</li> <li>Population south of the Tweed River unable to access local acute hospital services if M1 is impacted by flooding.</li> </ul>
<p><b>Area C</b></p> <p>Tweed Heads South (West) – 2 sites considered  (2/2/1)</p>	<ul style="list-style-type: none"> <li>Requires the delivery of a significant road interchange upgrade at Kirkwood Road. This significant piece of infrastructure is reliant on Roads and Maritime Services (RMS). RMS has previously advised that no detailed planning, funding or timing has been considered.</li> <li>One site sits below the extended centre line of Coolangatta Airport's runway 14. The Site's location is approximately 3.5km from the aerodrome and sits below the Inner Horizontal Zone level of AHD49.5m associated with the airport runway complex. This means that the highest point of the final structure needs to be below these limits. Additionally, the upper limits of any cranes associated with the construction will need to be below this limit as well for the duration of construction.</li> <li>One site floods under a PMF event to depth between 4 and 5 metres (40% of area). The remaining area has poor access with steep and bushfire prone areas impacting development.</li> <li>Population south of the Tweed River unable to access local acute hospital services if M1 is impacted by flooding.</li> </ul>
<p>Tweed Heads South (East) – 1 site considered  (1/1/1)</p>	<ul style="list-style-type: none"> <li>Requires the delivery of a significant road interchange upgrade at Kirkwood Road. This significant piece of infrastructure is reliant on RMS. RMS have advised that no detailed planning, funding or timing has been considered.</li> <li>Primarily residential area, limiting ability to reduce flooding impacts through engineering solutions. Fill of sites above Q100 would likely result in significant flood impacts on surrounding residential areas, which may require residential land acquisition to offset.</li> <li>Site is fully flooded in a PMF event to depth between 3 and 4 metres.</li> <li>Population south of the Tweed River unable to access local acute hospital services if M1 is impacted by flooding.</li> </ul>

Investigation Area	Key Considerations
<p><b>Area D</b></p> <p>Tweed Heads South (East) – 1 site considered  Tweed Heads South interchange (region) – 1 site considered  (2/1/2)</p>	<ul style="list-style-type: none"> <li>Requires a significant road interchange upgrade at Kirkwood Road to assist in addressing capacity issues on Minjungbal Drive. This significant piece of infrastructure is reliant on RMS capital program. RMS has previously advised that no detailed planning, funding or timing has been considered.</li> <li>Tweed City Shopping Centre is awaiting approval for expansion, which will result in additional traffic volumes.</li> <li>Flooding depth between 3 and 4 metres in a PMF event.</li> <li>Site would be isolated in a Q100 flood event.</li> <li>Population south of the Tweed River unable to access local acute hospital services if M1 is impacted by flooding.</li> <li>A specific site in this area was not identified, and a broad area assessment was undertaken.</li> <li>Requires a significant road interchange upgrade at Kirkwood Road to assist in addressing capacity issues on Minjungbal Drive. This significant piece of infrastructure is reliant on RMS capital program. RMS has previously advised that no detailed planning, funding or timing has been considered.</li> <li>The population south of the Tweed River is unable to access local acute hospital services if M1 is impacted by flooding.</li> </ul>
<p><b>Area E</b></p> <p>Terranora and Banora Point - 13 sites considered  (13/9/4)</p>	<ul style="list-style-type: none"> <li>Road access to Terranora is via minor roads (Terranora Drive, Scenic Drive, Broadwater Parkway) through residential areas that are primarily speed limited to 50km/h zones. Major road upgrades would be required to provide adequate access for emergency vehicles and traffic volume.</li> <li>Sites located on rural / minor roads were not viewed as acceptable. This was due to the road design being inadequate and located away from major roads, requiring longer travel times and circuitous routes of travel.</li> <li>Many of the rural / outer lying sites proposed would require significant transport enabling works (roads, public transport, etc.) and are also a significant distance from the M1.</li> <li>Population south of the Tweed River unable to access local acute hospital services if M1 is impacted by flooding.</li> <li>Some sites have steep gradients, which make it difficult to provide an accessible campus.</li> </ul>
<p><b>Area F1</b></p> <p>Chinderah near Melaleuca Station interchange – 1 site considered  (1/1/1)</p>	<ul style="list-style-type: none"> <li>Site is located north of the interchange resulting in limited access to the M1 southbound requiring road interchange upgrades and potential land resumption.</li> <li>Lack of public transport networks or utilities (e.g. electricity, water, sewerage, telecoms) infrastructure.</li> <li>Poor urban context – lack of supporting urban environment (e.g. houses, shops, schools and other community facilities).</li> <li>Adjacency to Tweed River – area included in ‘Flood Way’.</li> <li>Flooding depth between 6 and 7 metres in a PMF event.</li> <li>Filling the site to achieve minimum heights for construction is likely to have consequent impact to surrounding areas.</li> </ul>



Investigation Area	Key Considerations
<p><b>Area F2</b> Chinderah near Chinderah and Tweed Coast Road interchanges – 5 sites considered including 1 shortlisted site (not covered in this table - refer later section)</p> <p>Chinderah near Chinderah interchange – 1 site considered</p> <p>(6/4/6)</p>	<ul style="list-style-type: none"> <li>• Flooding depth between 5 and 7 metres in a PMF event.</li> <li>• Filling the site to address the flooding requirement would likely have consequent impact to surrounding residential area.</li> <li>• All access roads impacted by flooding and no alternative road access available with significant infrastructure upgrade required.</li> <li>• Council has identified that there is no cost benefit to upgrading the existing Chinderah road interchange with Tweed Coast Road as the M1 has only Q10 immunity north and south of the interchange.</li> <li>• Flooding depth between 4 and 5 metres in a PMF event.</li> <li>• Filling the site to address flooding requirement would have consequent impact to surrounding residential area.</li> <li>• All access roads impacted by flooding and no alternative road access available significant infrastructure upgrade required.</li> <li>• Council advised significant environmentally sensitive heathland in this area.</li> </ul>
<p><b>Area G</b> <b>G1 &amp; 2:</b> Duranbah – 7 sites considered plus study area</p> <p>(7/7/0)</p>	<ul style="list-style-type: none"> <li>• Poor road access via rural roads requiring significant road infrastructure upgrades.</li> <li>• Lack of public transport networks or utilities (e.g. electricity, water, sewerage, telecoms) infrastructure.</li> <li>• Poor urban context – lack of supporting urban environment (e.g. houses, shops, schools, and other community facilities), and lack of connectivity.</li> <li>• Primarily State Significant Farmland.</li> <li>• Bushfire prone area.</li> <li>• Some sites have steep gradients, which make it is difficult to provide an accessible campus.</li> </ul>
<p><b>G3:</b> Cudgen Plateau (South) – 1 site considered</p> <p>Kings Forest – 1 site considered/ shortlisted (not covered in this table - refer later section)</p> <p>(2/1/2)</p>	<ul style="list-style-type: none"> <li>• Site partially mapped as State Significant Farmland.</li> <li>• No street frontage to the major road, Tweed Coast Road.</li> </ul>
<p><b>G4:</b> Cudgen Plateau – 5 sites considered including 1 shortlisted site (not covered in this table - refer later section)</p> <p>Cudgen Road (West) – 1 site considered</p> <p>(6/4/3)</p>	<ul style="list-style-type: none"> <li>• All sites mapped as State Significant Farmland.</li> <li>• Sites are located on the agricultural side of Cudgen Road, remote from any surrounding developments, resulting in potential fragmentation of the Cudgen Plateau.</li> <li>• Developable area of two sites impacted by PMF event resulting in area of individual sites at or below lower threshold (8 ha)</li> <li>• Site located on secondary residential section of road.</li> <li>• Lack of public transport networks or utilities (e.g. electricity, water, sewerage, telecoms) infrastructure.</li> <li>• Significant area of site is flood prone.</li> <li>• Only usable land presents buildability issues due to gradient.</li> </ul>

Investigation Area	Key Considerations
<p><b>Area H</b> <b>H1:</b> 1 site outside of site selection area</p> <p><b>H2 &amp; H3:</b> Clothiers Creek interchange – 1 site considered plus study area</p> <p><b>H4:</b> Cudgera Creek interchange – 2 sites considered</p> <p><b>H5:</b> Terranora – 1 site considered</p> <p><b>H6:</b> Cobaki Lakes/ Piggabeen – 2 sites considered</p> <p>(7/2/6)</p>	<ul style="list-style-type: none"> <li>• Nominated site sits outside the site selection area.</li> <li>• Poor road access in terms of flooding, quality and capacity.</li> <li>• Poor urban context – lack of supporting urban environment (e.g. houses, shops, schools and other community facilities), and lack of public transport and connectivity</li> <li>• Located at the most southern end of the site selection area.</li> <li>• Poor urban context – lack of supporting surrounding environment (e.g. houses, shops, schools and other community facilities), and lack of public transport and connectivity.</li> <li>• Lack of utilities (e.g. electricity, water, sewerage, telecoms) / services infrastructure.</li> <li>• H2: Flooding depth of some areas up to 5 metres in a PMF event and steep gradients to remaining land, making it difficult to provide an accessible campus</li> <li>• H3: Flooding depth up to 5 metres in a PMF event impacts majority of site and road frontage, balance of site has steep gradients increasing development difficulty to provide an accessible campus</li> <li>• H3: Potential environmental and Aboriginal heritage impacts/constraints including adjacent Koala habitat.</li> <li>• One nominated site sits outside the site selection area.</li> <li>• Poor urban context – lack of supporting urban environment (e.g. houses, shops, schools and other community facilities), and lack of public transport and connectivity.</li> <li>• Road access to Terranora via minor roads through residential areas that are primarily speed limited to 50km/h zones – major road upgrades required to provide adequate access for emergency vehicles and traffic generally.</li> <li>• Would require significant transport enabling works (roads, public transport, etc.)</li> <li>• Significant travel distance from the M1.</li> <li>• Nominated site sits outside the site selection area.</li> <li>• Poor urban context – lack of supporting surrounding environment (e.g. houses, shops, schools and other community facilities), and lack of public transport and connectivity.</li> </ul>

# The Proposed Site

## Assessment of Proposed Site

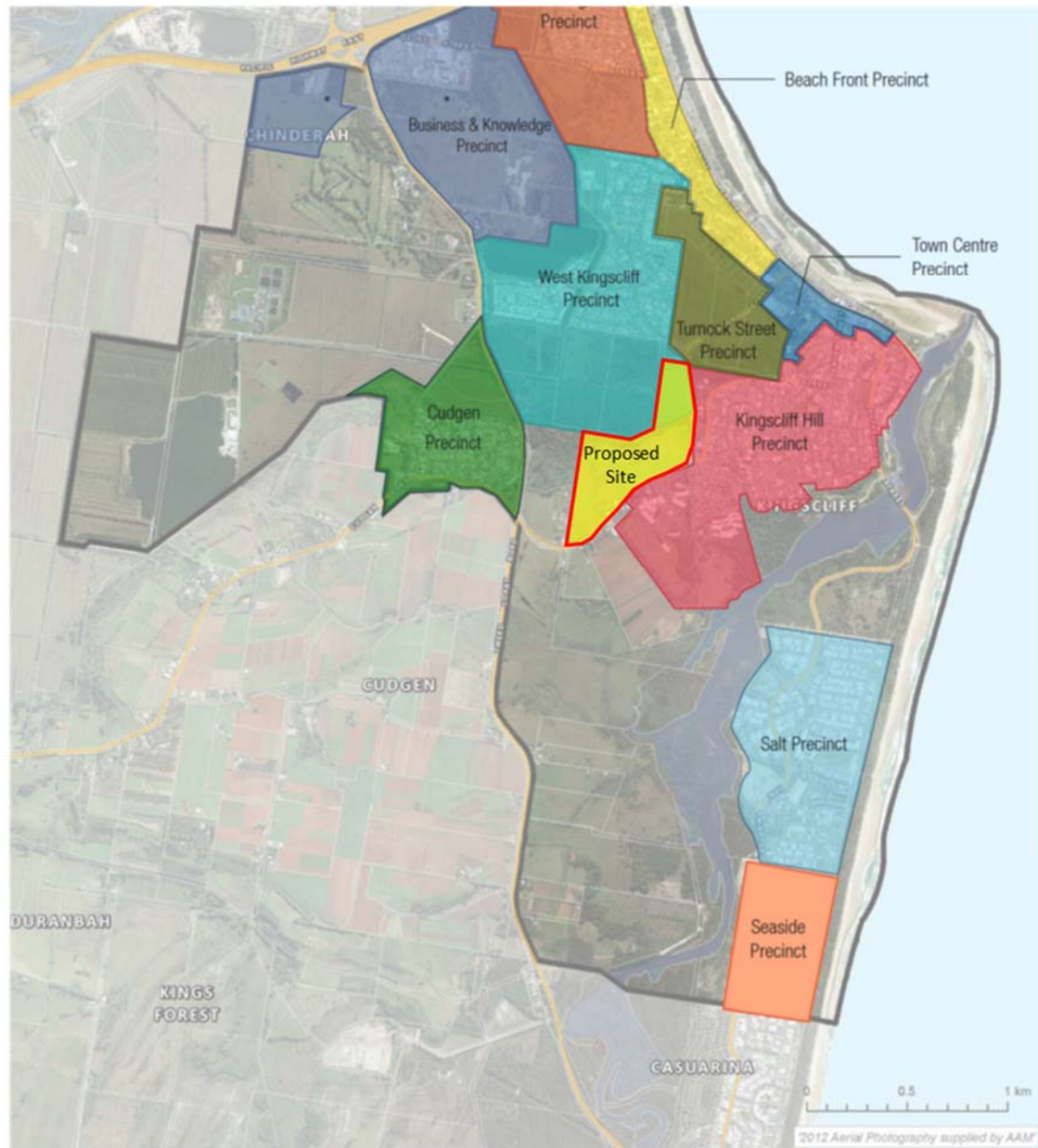
The following section provides an overview of some of the considerations that informed the assessment of the Proposed Site - it is a summary only and is not exhaustive.

### » Site location

Address:	Land area:	Location:
771 Cudgen Road, Cudgen	23ha - with 16ha above the PMF, which is the area required for the project	Opposite Kingscliff TAFE and between the existing residential areas of Kingscliff and Cudgen

### Test fit' master planning

Figure 6 – Proposed Site location overlaid on the Tweed Shire Council draft Kingscliff Locality Plan Precincts Plans



To assess the development potential of the identified area for the hospital on the Proposed Site, preliminary 'test fit' master planning has been undertaken. This tested preliminary site layouts and building massing to ensure the site would be suitable for development of the new hospital and a broader health and education campus over time. An illustrative test fit site plan and massing diagram for two options is included in Figure 7 below.

Two options were developed to test how the slope of the site might be used (Option A) compared to a more compact building utilising the broad central plateau (Option B). These images do not represent the future architectural design of the hospital, they were developed to test the constraints of the site only.

Figure 7 – Test Fit Master Planning – Proposed Site

Test Fit Study Site Plan - Option A



Test Fit Study Site Plan - Option B



Test Fit Study Massing Study – Option A



Test Fit Study Massing Study - Option B



### Location, Access and Traffic

- **Existing road network** – located close to the M1 and adjacent to a major road (Tweed Coast Road). Road network capacity is more distributed on the Tweed Valley Hospital site compared to the shortlisted Alternative Sites as there is the ability to connect into Turnock St and the eastern roads surrounding Kingscliff.
- **Easily accessible by the Tweed-Byron region**– well located to service existing and future population centres across the Tweed-Byron region, providing timely access by car for the majority (70%) of the Tweed LGA part of the catchment in under 30 minutes and with an average peak travel time equivalent to the existing Tweed Hospital site.  
The location south of Tweed Heads, with ready access to the M1 and Tweed Valley Way, is well placed to provide equitable access to the broader Tweed-Byron catchment and support hospital transfers from Byron Central Hospital and Murwillumbah District Hospital.  
Further information on travel times is included at Appendix C.
- **Public transport** - situated to take advantage of the existing public transport network with three public bus routes currently passing or terminating at the site. Further upgrade/ extension of services would be expected over time to service the increased demand from the hospital and major residential developments planned to the west and south of Kingscliff.
- **Proposed road network** – Council is seeking Commonwealth funding support for the duplication of Tweed Coast Road. While duplication of Tweed Coast Road is not technically required for development of the hospital on this site, early delivery would be advantageous.  
The site will require a range of upgrades along Cudgen Road and at the Tweed Coast Road intersection.  
An extension to Turnock Street connecting it back to Tweed Coast Road is also planned to the west of Kingscliff to support residential developments. This is not required for development of the hospital but will further improve alternative access to the site and take future pressure off Cudgen Road.
- **Flood access** - the site for the hospital and its immediate access roads are above the PMF, with good street frontage and various access points. There is alternative road access for the southern coastal population when the M1 and Tweed Coast Road are impacted by flooding. This will maintain access to acute hospital services for the population south of the Tweed River, with population centres to the north able to access Robina Hospital within approximately 30 minutes.

### Urban Context

**Surrounding urban environment** – the site is located on the outskirts of Kingscliff in close proximity to existing community facilities, including the Kingscliff Community Health Centre, Kingscliff TAFE and retail and accommodation facilities in Kingscliff. The location opposite Kingscliff TAFE and the major population centre in Kingscliff provides a significant and immediate opportunity to build on existing urban infrastructure.

The site has extensive street frontage (>900m) along Cudgen Road and it's interface with Turnock Street, providing good street visibility of the hospital campus with multiple opportunities for additional site access points and lower level buildings addressing the street edge to achieve a sensitive town planning response to the area.

The location opposite Kingscliff TAFE, provides the opportunity to strengthen partnerships between Health and TAFE and develop an integrated precinct over time. This Health & Education Precinct would be complementary to the development planned to the west of Kingscliff, identified in the draft *Kingscliff Locality Plan*, including a Business & Knowledge Precinct adjacent to the M1 and residential development of around 1,500 dwellings.

- **Planning considerations** – the 23-ha site has mixed zoning including approximately 70% agricultural, 20% nature reserve and 10% residential. The site is located on the north eastern tip of the Cudgen Plateau that has been mapped as State Significant Farmland (SSF). The agricultural area of the site represents approximately 0.13% of the total SSF mapped for the Far North Coast. A process will need to be undertaken to change the zoning of the site to permit development of the hospital and broader health and education campus over time. This is further covered under the “Environment, Heritage and Culture” heading below.
- **Impact on/of neighbouring properties** – The site is well situated to take advantage of the existing public transport network, and active transport will be promoted including the provision of end-of-trip facilities. The potential to use some hospital car parking outside of peak times (e.g. weekends) to help reduce parking and traffic congestion in Kingscliff could be explored for community benefit. Social impact studies will be undertaken as part of the planning submission.  
The potential impacts on agricultural activities are discussed further in the section titled Environment, Heritage and Culture below.

### Built Forms and Landscaping

- **Campus potential** – preliminary master planning (developed to inform the site due diligence) has confirmed that the site will support the full range of hospital expansion scenarios as well as a range of complementary health-related uses to support the development of a broader health and education campus over time.  
This includes development of the initial hospital plus a range of expansion scenarios (e.g. +20%, +50%, + 100%), as well as a renewal strategy so that the hospital can be rebuilt on the campus in the long term.  
The length of the site, with its extensive street frontage, supports the development of a range of complementary health-related developments, with multiple access points and lower level buildings addressing the street edge.  
The development areas will be supported and supplemented by greenspace providing ecological buffers and amenity for the campus.
- **Healing environment** - the site sits on a north facing ridge, which maximises access to nature, light and panoramic views across the adjacent nature reserve and out to the mountains and coast.  
The hospital can be effectively designed to utilise the slope of the land to maximise amenity and views while being sensitive to the surrounding area.  
A nature reserve on the site provides views from the hospital and will be preserved outside of the development area. It will be fringed by greenspace providing ecological buffers and amenity for the campus.

### Environment, Heritage and Culture

- **State Significant Farmland** – as noted earlier, the site is mapped as SSF. It currently has approximately 8 of the 23 hectares growing crops at any one time.

The location of the site will not fragment the Cudgen Plateau and will limit flow-on impacts to other SSF as follows:

- The site sits on the far north-eastern tip of the agricultural area - it is on the urban side of Cudgen Road, opposite Kingscliff TAFE and between existing residential areas of Kingscliff and Cudgen, with future residential developments planned to the north.
- The large size of the site allows for future hospital expansion and health and education developments on the site without encroaching on surrounding areas.
- Strengthening partnerships between Health and TAFE provides further opportunity to ensure that all health and education and supporting developments can be accommodated across these two large and collocated sites into the future.

Community consultation identified that there was significant opposition to any site that includes SSF.

- **Impact on/of neighbouring properties** – surrounding farms are already in close proximity to residences and schools and, with the existing controls required to manage these interfaces and an appropriate master planning response, agricultural activities will not significantly impact on hospital operations or be significantly impacted by it. A full Land Use Conflict Risk Assessment will be undertaken as part of the planning submission.

The master plan will position the hospital on the broad plateau towards the centre of the site, which is away from the short section of site frontage that has farming activities on the opposite side of the road. The master plan will maintain landscaping screening along the southern site road boundary to help provide an additional buffer.

- **Flooding considerations** – the site has 16 ha of land above the PMF level and its immediate access roads are also above the PMF. The site is also opposite Kingscliff TAFE, a well-equipped evacuation centre identified in regional flood and disaster planning and used by nearly 600 people in the 2017 floods.
- **Ecological considerations** – the northern part of the site supports and is adjacent to mapped Coastal Wetlands under the Coastal Management SEPP. Some parts of the hospital campus may also abut / overlap mapped Proximity Area for Coastal Wetlands. Civil engineering review of the ‘test fit’ master planning options indicate that the facility can be delivered with appropriate controls on the quality and quantity of surface and groundwater flows to the adjacent wetland. There is also the opportunity to improve stormwater runoff quality from current farming activities in terms of sediment impact.

Koala Habitat Class 2A and broad-leaved paperbark have been identified in the northern part of the site and fall under the Biodiversity Conservation Act (State legislation). However, ecological constraints are not present in the proposed location of the hospital development. Advisors have confirmed that based on the proposed footprint and associated impacts, this would not trigger a referral under the Environmental Protection and Biodiversity Conservation (EPBC) Act (Commonwealth legislation). The mapped wildlife corridor is not directly impacted.

- **Bushfire** – buffers and Asset Protection Zones (APZ) have been considered during initial master planning to accommodate expansion and growth of the hospital. These buffers overlap with planned greenspace, amenity and future road access, as well as environmental buffers and can be used to enhance the healing environment and overall amenity of the campus.

## Time, Cost and Value

- **Land acquisition** – the site is privately owned and was put forward by the landowner in response to the EOI process. The negotiation and site acquisition process will be undertaken in accordance with the *Land Acquisition (Just Terms Compensation) Act 1991*.
- **Existing utilities** - major utilities (including electricity, telecommunications, sewer, reticulated water supply and drainage infrastructure) are available in close proximity to the site.
- **Enabling works** – utilities connections and road upgrades to Cudgen Road from and including the intersection with Tweed Coast Road will be required.
- **Potential capital cost** – based on draft planning, assessment of the overall capital cost for developing the hospital on this site indicates that it is affordable within the allocated capital budget for the project.

## Assessment of Shortlisted Alternative Sites

Three sites were shortlisted for further detailed consideration and comparison against the Proposed Site.

### Assessment of Chinderah Site (F2-1)

The following section provides an overview of some of the considerations that informed the assessment of this shortlisted Alternative Site. It is a summary only and is not exhaustive.

#### » 'Site location

Address:	Land area:	Location:
Tweed Coast Rd, Chinderah Lot 4 DP 1106447 Lot 1 DP 1075645	60ha total 8-16ha on the western part of Lot 4 extending south onto Lot 1. This site was identified through assessment as the best site within the proposed Business & Knowledge Precinct.	Adjacent to Tweed Coast Road, close to M1 intersection.

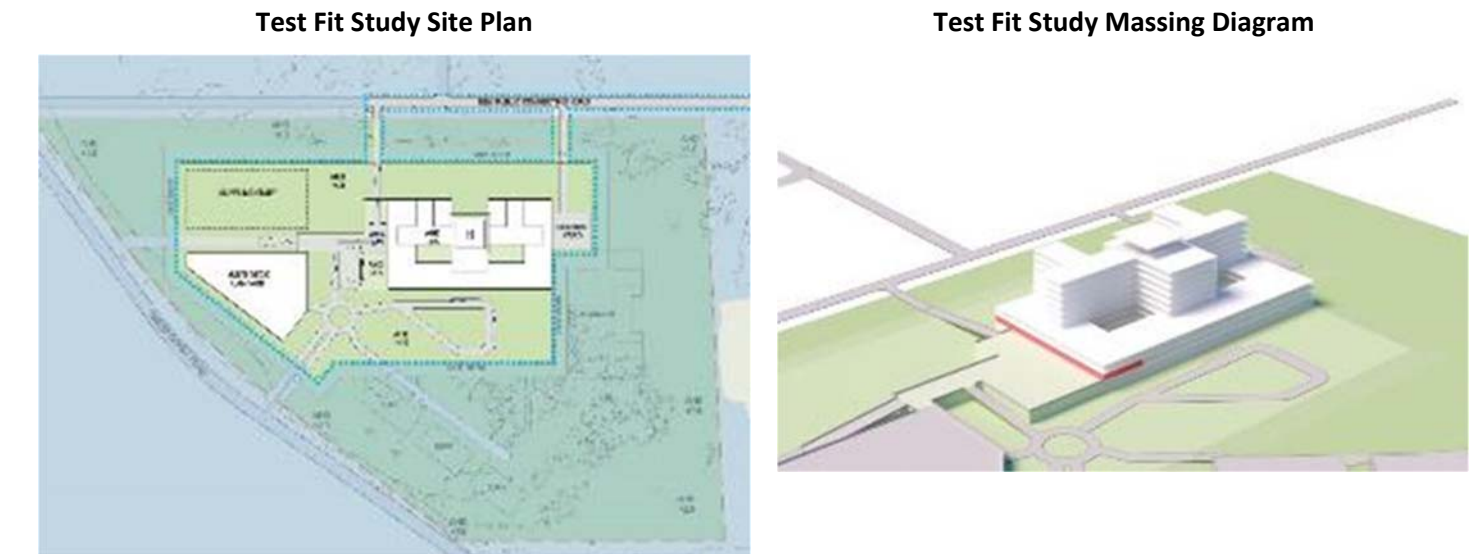
Figure 9 – Chinderah Site Location – Source, Nearmap Downloaded 4 July 2018



#### » 'Test fit' master planning

To assess the development potential of the identified area for the hospital on the Chinderah site, preliminary 'test fit' master planning has been undertaken. This tested preliminary site layouts and building massing (the general shape, form and size of the buildings) to ensure the site would be suitable for development of the new hospital and a broader health and education campus over time. An illustrative test fit site plan and massing diagram is included in Figure 9 below. These images do not represent the future architectural design of the hospital, they were developed to test the constraints of the site only.

Figure 9 – Test Fit Master Planning – Chinderah Site



#### » Key considerations against the Assessment Criteria

##### Location, Access and Traffic

- **Existing road network** – outside of flood events, the site has excellent access to the M1 via the Chinderah interchange located in close proximity to the site. The identified site also has suitable road frontage for a major access to Tweed Coast Road.
- **Easily accessible by the Tweed-Byron region**- the site is well located to service existing and future population centres across the Tweed-Byron region, providing timely access by car for the majority (75%) of the Tweed LGA part of the catchment in under 30 minutes and with an average peak travel time approximately 3 minutes less than the existing Tweed Hospital site.  
The location south of Tweed Heads, with ready access to the M1 and Tweed Valley Way, is well placed to provide equitable access to the broader Tweed-Byron catchment and support hospital transfers from Byron Central Hospital and Murwillumbah District Hospital.
- **Public transport** - the site is well-situated to take advantage of existing bus routes and services, which would be expected to expand over time with the increased demand created by the hospital and future surrounding developments.

- **Proposed road network** - Council is seeking Commonwealth funding support for the duplication of Tweed Coast Road. While duplication of Tweed Coast Road is not technically required for development of the hospital on this site, early delivery would be advantageous.

Alternative road access to the east (i.e. through to Elrond Drive) will be required to provide access in a flood event as well as network traffic capacity (i.e. not reliant solely on Tweed Coast Road). This access road would need to be an elevated structure to provide at least 1 in 100-year average return interval (Q100 or 1% AEP) flood immunity and not obstruct the flow of flood waters.

- **Flood access** – current access roads, including the M1 at Chinderah and the intersection off-ramps, are impacted by 1 in 20-year average return interval (Q20 or 5% AEP) flooding.

Use of this site for the hospital is contingent on an engineered solution to build an elevated access road at Q100 to connect back to flood free land along the coastal dune (Marine Parade) via Elrond Drive to avoid isolation in a flood event, as well as other engineered solutions (refer Flood engineering under the Built Forms and Landscaping criteria).

Provided this engineered solution is in place, there is alternative road access for the southern coastal population when the M1 and Tweed Coast Road are impacted by flooding. This will maintain access to acute hospital services for the population south of the Tweed River, with population centres to the north able to access Robina Hospital within approximately 30 minutes.

### Urban Context

- **Surrounding urban environment** – the site is located to the west of Kingscliff at the northern end of a major development area, which is planned to include around 1,500 residential dwellings as well as a Business & Knowledge Precinct, where the identified site for the hospital is located. The development has not yet commenced and has undergone a number of planning applications over the last 10+ years.

In line with the draft *Kingscliff Locality Plan*, the Business & Knowledge Precinct has the potential to significantly expand employment generating land uses within the region, including larger integrated developments. The Precinct is targeted to fulfil a transformative role to expand sub-regional economic and employment activity including the opportunity to diversify and expand within the existing industry pillars of tourism, agriculture, education, health and construction.

The identified site has extensive street frontage to Tweed Coast Road, providing good street visibility of the hospital campus. The site is also located close to West Kingscliff and the required alternative road connection via Elrond Drive would provide ready connectivity to an existing major population centre.

- **Planning considerations** - site zoning supports a health services facility/ hospital. There were multiple nominations supporting the site through the community consultation process and, subject to achieving a suitable level of flood immunity, there is likely to be a relatively low level of community opposition.

The landowner has raised concerns on the potential impact that preserving land on the Business & Knowledge Precinct for future hospital expansion and complementary health-related uses might have on the ability to generate more immediate employment opportunities, as well as retaining access to the future uplift in land value that is likely to occur as the Precinct develops. In these regards, the landowner has expressed a preference for a hospital development of at least 5 to 6 storeys, on a site of 8ha or less.

- **Impact on/of neighbouring properties** – considered a low risk as there are no immediate existing neighbours and surrounding developments can be planned around the hospital campus.

### Built Form and Landscaping

- **Campus potential** – The draft *Kingscliff Locality Plan* has identified this area as a future Business & Knowledge Precinct. While this means that surrounding developments may provide complementary health-related uses, overly constraining the hospital campus will limit the NSW Government's ability to manage how the proposed broader health and education campus develops over time, including the provision of green space and other important amenities.
- **Healing environment** - the site provides the opportunity for panoramic views out to the mountains and coast from the upper levels of the hospital building. The Architect's opinion is that the character and orientation of the site is good but will not achieve as good an outcome as the Proposed Site for this aspect.
- **Flood engineering** - an engineered solution will be required to build critical hospital infrastructure above the PMF. The test fit study of this site considered the potential to build non-critical services (e.g. retail, training etc.) above Q100 but below the PMF. The test fit study assumed the site is filled to Q100, with the Emergency Department and hospital entry one level above the raised ground level, requiring vehicle ramps and elevated ambulance/access decks. A multi-deck car park with a bridge link was also assumed to provide external areas above the PMF to support disaster response.

### Environment, Heritage and Culture

- **Flooding considerations** – the unfilled site is entirely impacted by flooding and the PMF is 5m to 6m above natural ground levels. Council has undertaken flood studies of this site and identified that it is extremely sensitive to blockage and risk of back up and would therefore require large flood corridors to be maintained. The Tweed Valley Floodplain Risk Management Study and Plan identifies that a maximum of 65% of the Business & Knowledge Precinct can be filled to achieve Q100 coverage across this area. In terms of implementing this fill control, master planning of the hospital campus will need to be coordinated with the master planning for the entire 60 ha within Lot 4 DP 1106447 and Lot 1 DP 1075645.
- **Stormwater management** - is highly contingent on adjacent developments. The 65% fill ratio (refer point above) will guide this, but detailed flood and drainage modelling will be required as part of a further detailed due diligence.
- **Ecological considerations** – while not located on the identified site, mapped area of Coastal Wetlands and the Proximity Area for Coastal Wetlands under the Coastal Management SEPP are present on the broader 60 ha area (Lot 4 DP 1106447 and Lot 1 DP 1075645). Civil engineering review of the test fit master planning indicates that the hospital can be delivered with no significant impact on the quality and quantity of surface and groundwater flows to the adjacent wetland.
- **Bushfire** – suitable buffers and Asset Protection Zones will need further consideration with respect to bushfire prone land to the west (Vegetation Category 1 and 2) during master planning to address expansion and growth of the hospital campus.

## Time, Cost and Value

- **Delivery timeframes** – this site carries a low planning approval risk for the hospital. Market forces will ultimately dictate the rate that the surrounding Business & Knowledge Precinct develops and enhances the urban environment. However, the surrounding developments are not considered critical given the extensive street frontage, proximity to the M1 and connection to West Kingscliff via Elrond Drive that will be required to achieve alternative road/flood access.
- **Existing utilities** - major utilities (including electricity, telecommunications, sewer, reticulated water supply and drainage infrastructure) are available in close proximity to the site.
- **Enabling works** – site enabling works (such as filling the site, connecting utilities, constructing road connections etc.) have been factored into the potential capital costs, noting that negotiation of some offsets may be possible.
- **Potential capital costs** – assessment of the overall capital cost for developing the hospital on this site indicates that it is unaffordable. The major cost factor is the requirement for an engineered solution to provide suitable flood immunity. The estimated overall cost impact is up to 20% of the construction cost of the hospital, which would significantly impact on the budget available to build clinical space.

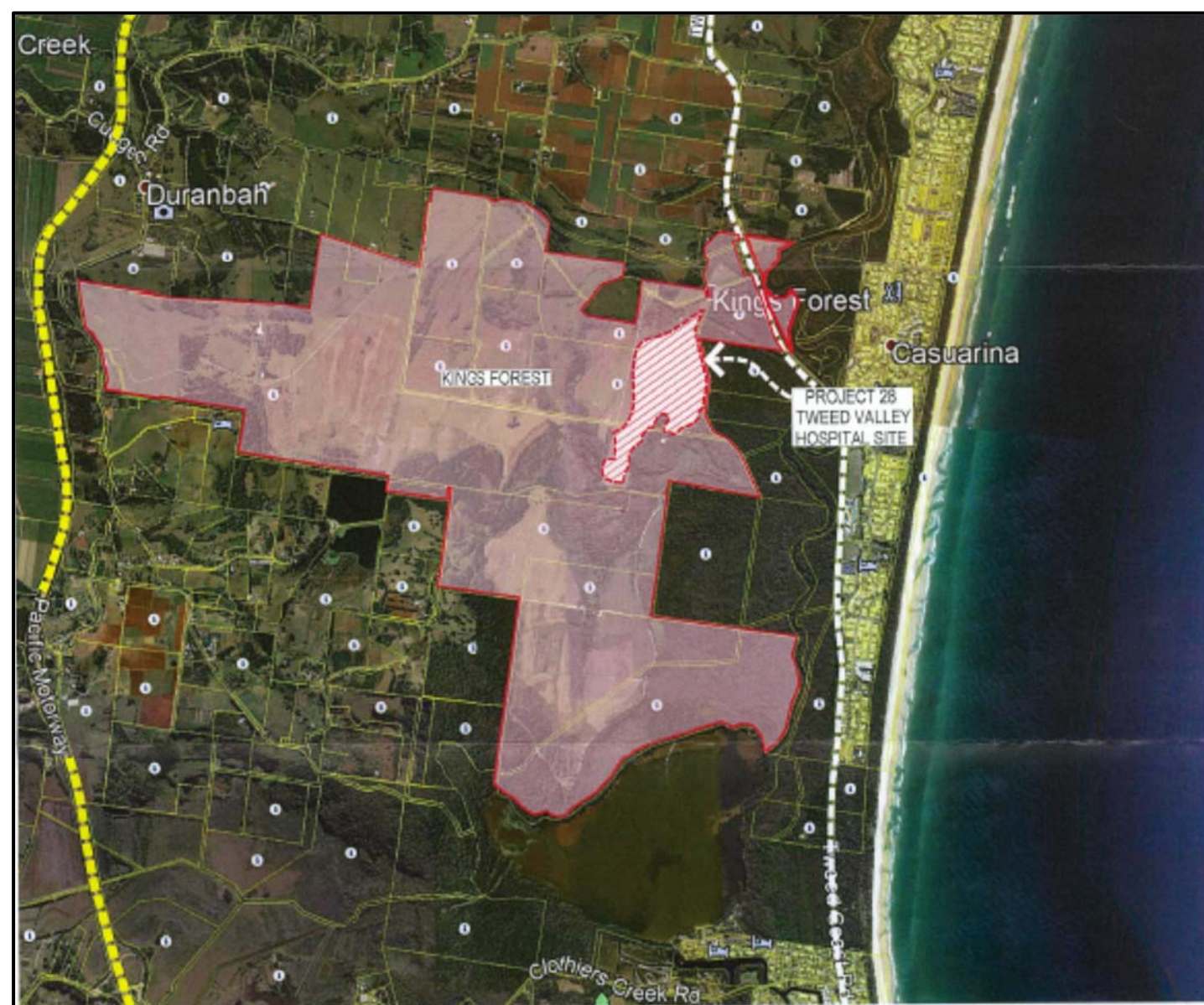
## Assessment of Kings Forest Site (G3)

The following section provides an overview of some of the considerations that informed the assessment of this shortlisted Alternative Site. It is a summary only and is not exhaustive.

### » 'Site location

Address:	Land area:	Location:
Kings Forest Lot 1 DP 7811633 Lot 40 DP7482 Lot 50 DP 1188902	64 ha total for all lots listed. 16 ha proposed for the hospital campus in the northeast of the Kings Forest estate on the northern part of Precinct 5.	West of Casuarina and Tweed Coast Road.

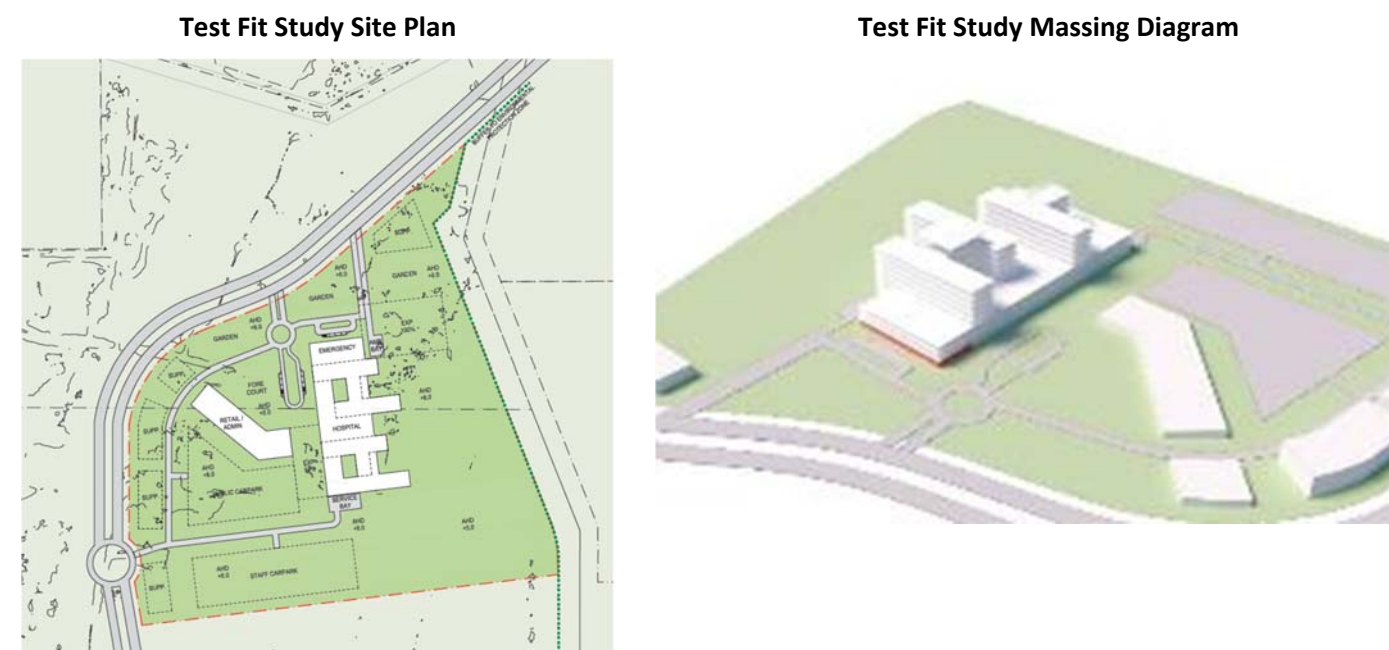
Figure 10 –Kings Forest Site Location



### » 'Test fit' master planning

To assess the development potential of the nominated Kings Forest site, preliminary 'test fit' master planning has been undertaken. This tested preliminary site layouts and building massing to ensure the site would be suitable for development of the new hospital and a broader health and education campus over time. An illustrative test fit site plan and massing diagram is included in Figure 11 below. These images do not represent the future architectural design of the hospital, they were developed to test the constraints of the site only.

Figure 11 – Test Fit Master Planning – Kings Forest Site



### » Key considerations against the Assessment Criteria

#### Location, Access and Traffic

- **Existing road network** – the site is located close to the M1 and adjacent to a major road (Tweed Coast Road). A four lane entrance road into the estate has been proposed by the landowner.
- **Easily accessible by the Tweed-Byron region**- the site is reasonably located to service existing and future population centres across the Tweed-Byron region, providing timely access by car for the majority (64%) of the Tweed LGA part of the catchment in under 30 minutes, and with an average peak travel time approximately 3 minutes more than the existing Tweed Hospital site. The increased travel time for this site in comparison to the Proposed Site and the Tweed Coast Road site is due to the need to turn right into the estate across primary tidal traffic flow and a slight increase in distance. The location south of Tweed Heads, with reasonable access to the M1 and Tweed Valley Way, will provide equitable access to the broader Tweed-Byron catchment and support hospital transfers from Byron Central Hospital and Murwillumbah District Hospital.
- **Public transport** - bus routes and frequency are limited and would require significant upgrade/extension to the current public transport network. Sustainability of these services would be linked to demand created by the future surrounding developments.



- **Proposed road network** – Council is seeking Commonwealth funding support for the duplication of Tweed Coast Road. While duplication of Tweed Coast Road is not technically required for development of the hospital on this site, it will be required when the hospital and around a third of the broader Kings Forest estate are developed. Early delivery would be advantageous. Council has also advised that local flooding immediately south of Cudgen Road would be addressed as part of duplication works though the timing of works is not known. Alternative road access to the site is proposed via connection with either Melaleuca or Duranbah Road and will need to be completed prior to the hospital opening along with the estate access roads required to service the hospital site. Connection to Reardons Road (proposed for future consideration) is the preferred alternative connection and would be required in the longer term to facilitate alternative access for the hospital. The timing of these works is not known. The implications of this connection need to be considered for both the Kings Forest development as well as surrounding farmland which currently utilises the subject road.
- **Flood access** - further analysis has identified that Plantation Road is likely to provide alternative road access if the current Tweed Coast Road is impacted by local flooding immediately south of Cudgen Road. This will provide alternative road access for the southern coastal population when the M1 and Tweed Coast Road are impacted by flooding. This will maintain access to acute hospital services for the population south of the Tweed River, with population centres to the north able to access Robina Hospital within approximately 30 minutes. The proposed connection to Duranbah Road also has the potential to provide alternative road access, if constructed with Q100 flood immunity.

#### Urban Context

- **Surrounding urban environment** – the Kings Forest estate is currently master planned for a 4,500-dwelling residential development with supporting town centre and amenities; some of which are contingent on funding by other parties and triggered by estate occupancy levels (e.g. community centre, sporting facilities, schools). The development has not yet commenced and has undergone a number of planning iterations over the last 8 years.

A Health/ Education/ Aged Care precinct is now proposed on the balance of Precinct 5 to complement the public hospital development along with the new town centre and initial release of 350 residential lots.

The landowner has advised that construction of the Service Station on Tweed Coast Road and associated four lane entry / exit roundabout, is imminent and will set up the entry to the estate.

Without street frontage to a major road, the proposed development of residential lots and the new town centre is required to provide a suitable urban environment so that the hospital is not isolated. As outlined below, State and Commonwealth Government approvals are required to develop the Kings Forest estate to ensure that Koalas and other sensitive flora and fauna are protected. The development is also subject to market forces that will ultimately dictate the pace of development.

- **Planning considerations** – a previous revision to the landowners' Concept Plan is currently awaiting approval and the new proposal for the first stage of the Kings Forest development results in the following changes to that Concept Plan:
  - Precinct 3 - education replaced with residential
  - Precinct 5 - residential replaced with health-related services including the new hospital.
 Community consultation included a significant number of nominations for this site, however, a significant amount of unsolicited feedback was also received in opposition to the hospital being located at Kings Forest, primarily related to potential impacts on Koalas.
- **Impact on/of neighbouring properties** – considered a low risk as there are no existing neighbours and surrounding developments can be planned around the hospital campus.

#### Built Form and Landscaping

- **Campus potential** – future Health/Education/Aged Care precinct is proposed to complement the hospital development. Subject to the delivery of these surrounding developments, the site provides a long-term opportunity to leverage education and other health-related partnerships consistent with the plan to develop a broader health and education campus over time. There is no development established at this time and timing of this is uncertain.
- **Healing environment** – the site provides the opportunity for panoramic views out to the mountains and coast. The Architect's opinion is that the character and orientation of the site is good but will not achieve as good an outcome as the Proposed Site for this aspect.

#### Environment, Heritage and Culture

- **Ecological considerations** – mapped resident Koala population and potential Wallum Frog habitat. Operation of the hospital will be 24/7 and substantially increase traffic volumes when compared to the approved residential subdivision. Advice is that this may present a *Serious and Irreversible Impact* under the Biodiversity Conservation Act (State legislation) and that this is likely to require a further referral under the EPBC Act (Commonwealth legislation). Together, these multi-level approvals represent a substantial timing risk for the project.
- **Koala Plan of Management (KPoM)** – amendment to the current KPoM is pending public exhibition and State/Commonwealth approvals. The KPoM will require further amendment to address the changes to the Concept Plan, 24/7 hospital operations and significant increase in traffic.
- **Flooding considerations** – the nominated site has 5.8 ha above the PMF. Prior to sale, the site is proposed to be filled in the order of 0.5m-1.5m to bring the 16-ha hospital campus above the PMF.
- **Stormwater management** - will need to consider adjacent ecological areas and be planned in conjunction with surrounding developments.
- **Bushfire** – suitable buffers and Asset Protection Zones will need further consideration during master planning to address expansion and growth of the hospital campus, but it is noted that bushfire poses some risk on this site.

#### Time, Cost and Value

- **Delivery timeframes** – the requirement to amend the Concept Plan and KPoM; and secure associated State and Commonwealth approvals; places a significant risk on the delivery timeframe for the hospital and surrounding developments.
 

Market forces will ultimately dictate the rate that a suitable urban environment develops, including the rate that residential and commercial sites, when released with planning approval, are purchased and developed. Investment in community facilities (e.g. community centre, sporting facilities, schools) is yet to be committed.
- **Existing utilities** - major utilities (including telecommunications, sewer, reticulated water supply and drainage infrastructure) are available in relatively close proximity to the site.
- **Enabling works** - the proposal is to fill the site to the PMF level and to provide all connecting road and utilities infrastructure at no cost to the hospital, given that the infrastructure is required for the broader estate. It is possible that suitable performance guarantees can be secured to ensure the timely provision of these enabling works.
- **Potential capital costs** – subject to securing binding commitments on the provision of enabling works at no cost to the NSW Government, assessment of the overall capital cost for developing the hospital on this site indicates that it is likely to be affordable and broadly similar to the Proposed Site.

## Assessment of Tweed Coast Road Site (G4-1)

The following section provides an overview of some of the considerations that informed the assessment of this shortlisted Alternative Site. It is a summary only and is not exhaustive.

### » 'Site location

Address:	Land Area:	Location:
121 & 147 Tweed Coast Road, Cudgen Lot 1 DP 1075645 Lot 14 DP 871062	60 ha total. 12 ha comprising western part of Lot 14 extending south onto Lot 1.	Eastern side of Tweed Coast Road near Plantation Road.

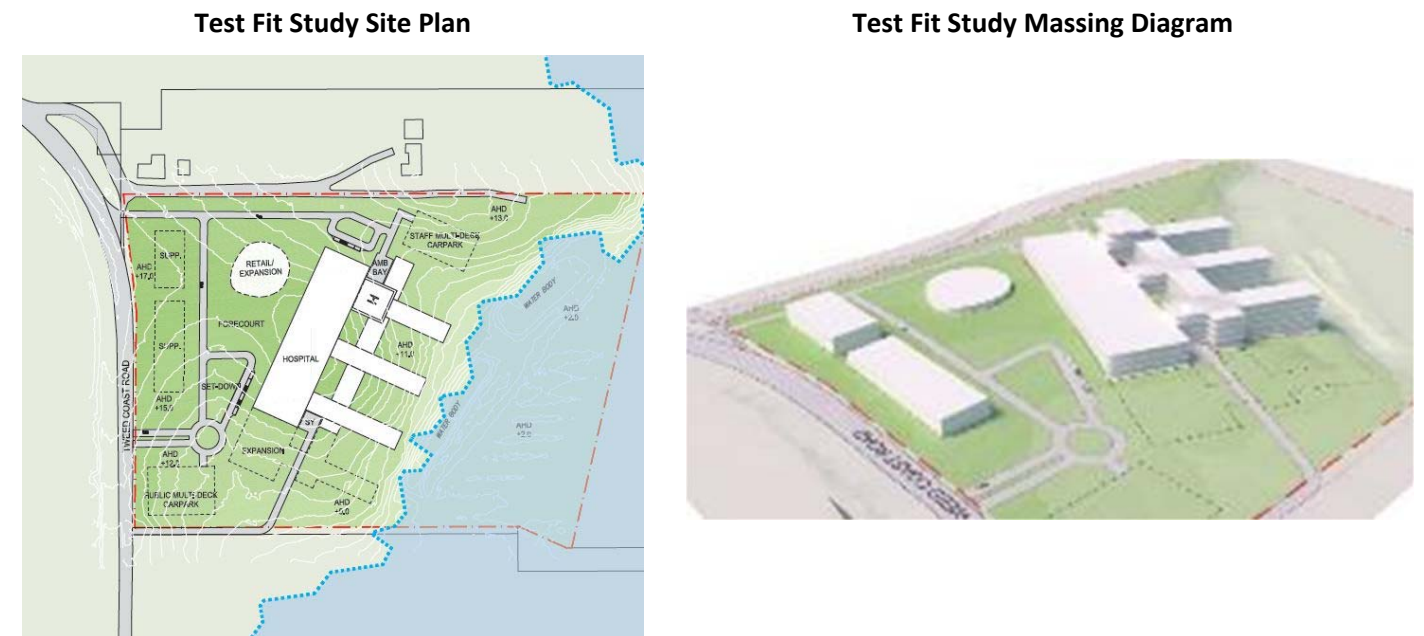
Figure 12 – Tweed Coast Road Site Location



### » 'Test fit' master planning

To assess the development potential of the Tweed Coast Road site, preliminary 'test fit' master planning has been undertaken. This tested preliminary site layouts and building massing to ensure the site would be suitable for development of the new hospital and a broader health and education campus over time. An illustrative test fit site plan and massing diagram is included in Figure 13 below. These images do not represent the future architectural design of the hospital, they were developed to test the constraints of the site only.

Figure 13 – Test Fit Master Planning – Tweed Coast Road Site



### » Key considerations against the Assessment Criteria

#### Location, Access and Traffic

- **Existing road network** – the site is located close to the M1 and adjacent to a major road (Tweed Coast Road) with suitable road frontage for a major access to Tweed Coast Road and a number of more limited movement intersections.
- **Easily accessible by the Tweed-Byron region**- the site is well located to service existing and future population centres across the Tweed-Byron region, providing timely access by car for the majority (70%) of the Tweed LGA part of the catchment in under 30 minutes and with an average peak travel time consistent with the existing Tweed Hospital site.

The location south of Tweed Heads, with ready access to the M1 and Tweed Valley Way, is well placed to provide equitable access to the broader Tweed-Byron catchment and support hospital transfers from Byron Central Hospital and Murwillumbah District Hospital.

- **Public transport** - bus routes and frequency are limited and would require significant upgrade/extension to the current public transport network. Sustainability of these services would be linked to demand created by the other developments (e.g. Kings Forest). The timing for upgrade to the network is uncertain.

- **Proposed road network** – Council is seeking Commonwealth funding support for the duplication of Tweed Coast Road. While duplication of Tweed Coast Road is not technically required for development of the hospital on this site, early delivery would be advantageous. Council has also advised that local flooding immediately south of Cudgen Road would be addressed as part of duplication works.

Alternative road access to the site can be achieved through dual access points from the hospital on to Tweed Coast Road and the ability to circumnavigate any blockage of Tweed Coast Road via Plantation Road, Cudgen Road and Casuarina Way.

- **Flood access** - further analysis has identified that Plantation Road is likely to provide alternative road access if the current Tweed Coast Road is impacted by local flooding immediately south of Cudgen Road. This will provide alternative road access for the southern coastal population when the M1 and Tweed Coast Road are impacted by flooding. This will maintain access to acute hospital services for the population south of the Tweed River, with population centres to the north able to access Robina Hospital within approximately 30 minutes.

### Urban Context

- **Surrounding urban environment** – the site is located between Kingscliff, Cudgen, Casuarina and the future Kings Forest development. It is surrounded by farmland and has no urban environment immediately adjacent to it. The site has good street frontage to Tweed Coast Road, providing good street visibility of a hospital campus.

### Built Forms and Landscaping

- **Campus potential** – test fit master planning has confirmed that the site is sufficient to accommodate the hospital and a range of expansion scenarios in the area above the PMF. A broader health and education campus can be developed on the site over time, however, the opportunities are more limited in comparison to the Proposed Site (collocated with TAFE) or a fully developed Kings Forest or Chinderah Business & Knowledge Precinct, given that the site is smaller and surrounded by SSF.
- **Healing environment** – the site rises from Tweed Coast Road to a ridge, which maximises access to nature, light and panoramic views across the adjacent farmland and out to the mountains and coast. The hospital can be effectively designed to utilise the slope of the land to maximise amenity and views while being sensitive to the surrounding area.

### Environment, Heritage and Culture

- **State Significant Farmland (SSF)** – the site is mapped as SSF and located on the agricultural side of Cudgen Road. Development of this site will result in potential fragmentation of the Cudgen Plateau given that it is bordered on both sides and the opposite side of Tweed Coast Road by other SSF. The nominated site has not been actively farmed for many years and most of the site is zoned RU2 Rural Landscape, which allows development of a range of buildings such as vet clinic, ecotourism accommodation etc. Community consultation identified that there was significant opposition to any site that includes SSF.

- **Impact of/on neighbouring properties** – the site is surrounded on three sides by SSF including actively tilled land directly opposite. This provides an increased risk of land use conflicts and agricultural activities impacting on hospital operations. Duplication of Tweed Coast Road will provide an increased buffer to the land opposite and landscaping screening can be located along the north and south boundaries.
- **Flooding considerations** – the site has just over 8 ha of developable land above the PMF with good street frontage.
- **Bushfire** – suitable buffers and Asset Protection Zones to the east will need further consideration during master planning to address expansion and growth of the hospital campus.

### Time, Cost and Value

- **Existing utilities** – major utilities (including electricity, telecommunications, sewer, reticulated water supply and drainage infrastructure) are available in close proximity to the site.
- **Potential capital costs** – assessment of the overall capital cost for developing the hospital on this site indicates that it is likely to be affordable and broadly similar to the Proposed Site.

## Assessment of 'Brownfield Option' for expansion of The Tweed Hospital site

For comparison purposes, the project team undertook a short study of a 'brownfield option', which considered acquiring land around the existing hospital; building the new hospital; decanting services and demolishing the existing buildings; and then using the existing site for future expansion and complementary uses.

The following section provides an overview of some of the considerations that informed the assessment of this site. It is a summary only and is not exhaustive.

The study assumed that land currently used for car parking and a bowling green to the east would be acquired in preference to the cost and social impact of displacing residents from medium density residential properties or replacing major civic or community recreation buildings. This was not a shortlisted option and therefore no discussions have been undertaken with the landowners of adjacent sites.

Address:	Land area:	Site location:
14-34 Powell St, Tweed Heads	4ha existing Potential for 1.2ha acquisition including closing and incorporating Powell Street to create a 5.2 ha campus	Car parking and bowling green to the east of the existing Tweed Hospital.

Figure 14 – Brownfield Options Site Location



### » 'Test fit' master planning

To assess the development potential of the identified expansion of The Tweed Hospital site, preliminary 'test fit' master planning has been undertaken. This tested preliminary site layouts and building massing for the initial hospital, with future expansion and broader health and education campus achieved through demolition and expansion back on to the existing site. The constrained site required a high density solution as shown in the illustrative test fit site plan and massing diagram in Figure 15 below. These images do not represent the future architectural design of the hospital, they were developed to test the constraints of the site only.

Figure 15 – Test Fit Master Planning – Brownfield Option

Test Fit Study Site Plan



Test Fit Study Massing Diagram



### » Key considerations against the Assessment Criteria

#### Location, Access and Traffic

- Existing road network/ public transport** – the existing Tweed Hospital provides a location with well-established transport facilities including site access, nearby intersection capacity, public transport and walk/cycle connectivity to the surrounding Tweed Heads area. Contiguous expansion in this area is likely to require the closure of a surrounding street - in the study case, Powell Street would be closed, increasing traffic on other roads within medium density residential area.
- Easily accessible by the existing Tweed community** – the site is well located to service the existing Tweed population centres, providing timely access by car for the majority (70%) of the Tweed LGA part of the catchment in under 30 minutes.
- Equitable access** – the location of the existing hospital site does not provide equitable access to the broader Tweed-Byron catchment. The location at the far north of the catchment maximises the distance that the population centres outside of Tweed Heads need to travel as well as maximising the distance for hospital transfers from Byron Central Hospital and Murwillumbah District Hospitals. By 2041, the average peak travel time by car is forecast to increase by 5 minutes to the existing Tweed Hospital site.

- **Flood access** – there is no alternative road access for the southern coastal population when the M1 and Tweed Coast Road are impacted by flooding. This means that the population south of the Tweed River will not be able to access acute hospital services locally.

#### Urban Context

- **Surrounding urban environment** – site is located within the established urban environment of Tweed Heads in proximity to other community facilities. There is an established community around the hospital, including a range of medium density aged care and retirement living.
- **Impact on neighbouring properties** – dominant high-density building (e.g. 15 storeys plus helipad) will over-shadow adjacent buildings and result in a challenging construction interface with a major operating hospital and heavily populated local area, requiring careful management to mitigate impacts (e.g. road closures, both temporary and permanent, further pressure on constrained on-street parking, etc).
- **Planning considerations** – although rezoning of the additional land required to build the hospital is likely to be relatively straightforward, the local impact of undertaking major construction in the middle of a heavily populated area has the potential to generate community objections and complaints.

#### Built Form and Landscaping

- **Clinical service delivery** – compressed building footprint limits the extent that functional relationships can be optimised, constraining clinical efficiency and service co-locations.
- **Campus potential** – to develop a broader health and education campus on the constrained site requires the hospital to be built at high density on adjacent land (to be acquired) so that the existing buildings can then be demolished, and the site redeveloped.
- **Healing environment** – the full site provides the opportunity for panoramic views across the river and out to the coast. However, with the test fit study, views to the river are constrained in the first stage as the building will need to ‘turn its back’ on the river to support expansion back onto the existing site.
- **Flood engineering** - an engineered solution will be required to build critical hospital infrastructure above the PMF. The test fit study of this site considered the potential to build non-critical services (e.g. retail, training etc.) above Q100 but below PMF. The test fit study assumes the natural ground level is at or above Q100, with the Emergency Department and hospital entry one level above ground level, requiring vehicle ramps and elevated ambulance/access decks. A multi-deck car park with a bridge link is also assumed to provide external areas above the PMF to support disaster response and compensate for lost car parking spaces.

#### Environment, Heritage and Culture

- **Flooding considerations** – PMF is 2 to 3m above natural ground levels and development of the site is contingent on an engineered solution to build critical hospital infrastructure above the PMF (refer flood engineering above).

#### Time, Cost and Value

- **Delivery timeframes** – the constrained site, located immediately adjacent to a major operating hospital and in a heavily populated area, will create some construction inefficiencies that will extend the delivery timeframe.  
Compulsory acquisition may also be required, and the negotiation process has not yet started.
- **Existing utilities** - major utilities (including electricity, telecommunications, sewer, reticulated water supply and drainage infrastructure) are available at the site.
- **Potential capital costs** – assessment of the overall capital cost for developing the hospital on this site indicates that it is unaffordable. The major cost factors are the requirement for an engineered solution to provide suitable flood immunity and the likely land acquisition cost. The estimated overall cost impact is up to 20% of the construction cost of the hospital, which would significantly impact on the budget available to build clinical space.

## Conclusions and Next Steps

The assessment of the shortlisted Alternative Sites and the brownfield option is summarised in the previous sections of this report. The conclusion of the site selection process was a detailed merit and risk assessment based on all of the information gathered on the shortlisted sites and the Proposed Site.

Community consultation identified that the vast majority of the community supports a new hospital in the region and there is consensus on the need for more healthcare services generally to keep up with growth in the region and an ageing population.

### » Chinderah Business & Knowledge Precinct

The shortlisted site at Chinderah received a good level of community support and was recognised for its proximity to the M1, providing great day-to-day access.

The key attributes of the site warranted a further review of an engineered solution to place critical hospital infrastructure above maximum flood levels and provide alternative road access in lesser flood events. The additional costs involved with the overall solution for this site would significantly impact on the budget available to build clinical space. The resulting impact on clinical services would be unacceptable and this option was therefore discounted.

### » Kings Forest

The Kings Forest site received strong community feedback, both for and against. Community support included that it would not impact State Significant Farmland and it was located away from Kingscliff itself. Opposition was primarily in relation to the potential impact on Koalas.

If a suitable urban environment is established through development of the proposed town centre, civic amenities and residential developments, the nominated Kings Forest site has the potential to respond well as a site for the new hospital.

The Kings Forest development has not yet commenced and has undergone a number of planning iterations over the last 8 years. The proposed development of residential lots and the new town centre that is required to ensure the hospital is not an isolated development, are also subject to market forces that will ultimately dictate the pace of development. State and Commonwealth approvals are required to develop Kings Forest, specifically in relation to the protection of Koala habitat.

The risk of the hospital being delayed through complex multi-level approvals or becoming an isolated development for an extended period due to approvals and/or the uncertainty of the housing market were key considerations in the merit and risk review of this site.

### » 121 & 147 Tweed Coast Road

The Tweed Coast Road site has many of the positive attributes of the Proposed Site, including good street frontage to a major road, easily accessible by the Tweed-Byron community, above flood levels, ready access to existing road and utilities infrastructure and the potential for a healing environment. However, despite good street frontage to a major road it has no urban environment immediately adjacent to it.

The site is mapped as SSF and is surrounded on three sides by other SSF. This location risks fragmenting the main agricultural area of the Cudgen Plateau, and placing additional development pressure on farming activities.

### » Brownfield option - expansion of the existing Tweed Hospital site

The existing 4 ha site is built-out and has inadequate space to develop new buildings. The site is constrained on all four sides by public roads; medium density residential developments to the north and south; Tweed River to the east and a major community recreation facility to the west (Tweed Heads Bowls Club). The location of the existing Tweed Hospital site does not provide equitable access to the broader Tweed-Byron catchment and is inaccessible in a Q20 flood event for the population south of the Tweed River.

Major redevelopment of the site is contingent on an engineered solution to build critical hospital infrastructure above the PMF, this includes building the Emergency Department and hospital entry one level above ground level, requiring vehicle ramps and elevated ambulance/access decks. A multi-deck car park with a bridge link is also required to provide external areas above the PMF to support disaster response and compensate for lost car parking spaces.

The additional costs involved with the overall solution for this site would significantly impact on the budget available to build clinical space. The resulting impact on clinical services would be unacceptable.

The brownfield option was not a shortlisted option.

### » Proposed Site – 771 Cudgen Road, opposite Kingscliff TAFE

After considering all of the pros and cons of the sites against the Assessment Criteria, as well as the merit and risk review and the conclusions outlined above, on 30 June 2018 the NSW Minister for Health confirmed that the new Tweed Valley Hospital will be located at 771 Cudgen Rd, Cudgen, opposite Kingscliff TAFE.

The site selection process, including the Phase 2 assessment of nominated Alternative Sites, identified the Proposed Site as the best site for a major new referral hospital serving the Tweed-Byron region and capable of achieving the best possible outcomes for patients, consumers and clinicians with regard to hospital design, amenity and future expansion.

## Next steps

### Site acquisition and planning approvals

The NSW Government decision confirming the Proposed Site for the new Tweed Valley Hospital on Cudgen Road, opposite Kingscliff TAFE, enables the site acquisition process and development of detailed planning approval submissions to continue.

### Consumer and community participation

The project team is seeking applications from community members and healthcare consumers to help shape the planning and design of the Tweed Valley Hospital, by participating in various planning groups. The opportunity has been advertised and applications close at 5pm on Monday 23 July 2018.

Further information on this opportunity as well as on-going service planning, master planning, concept design and other project planning activities can be found on the project website at:

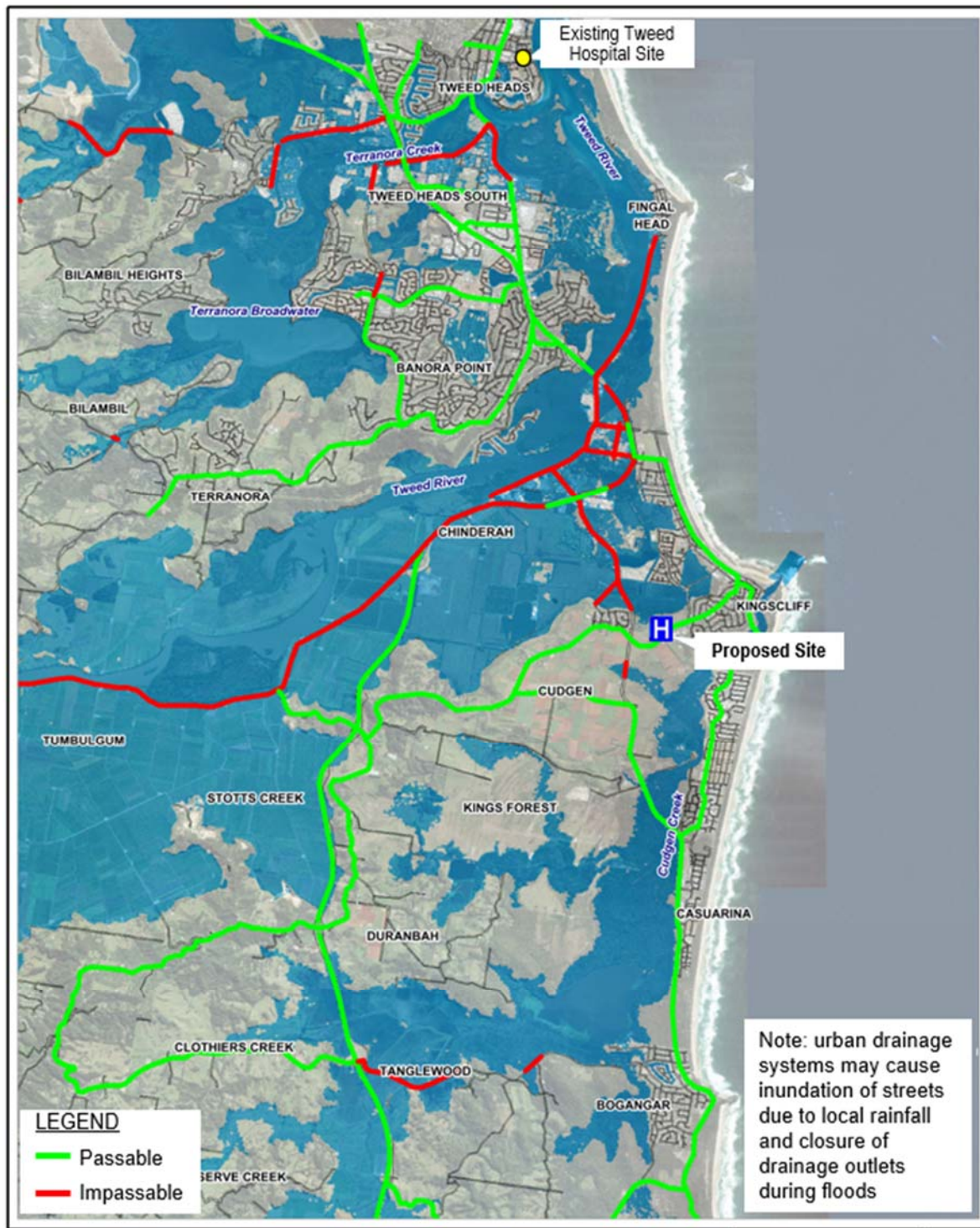
[www.tweedvalleyhospital.health.nsw.gov.au](http://www.tweedvalleyhospital.health.nsw.gov.au)

## Appendix A: Flood Mapping

Flooding is a key risk across the Tweed Valley region, and ensuring that the major population centres retain access to acute hospital services under Q20 and Q100 design flooding events are important considerations.

There is alternative road access for the southern coastal population if the M1 and Tweed Coast Road are impacted by flooding. This will help maintain access to acute hospital services for the population south of the Tweed River during times of flood, with population centres to the north able to access Robina Hospital within approximately 30 minutes.

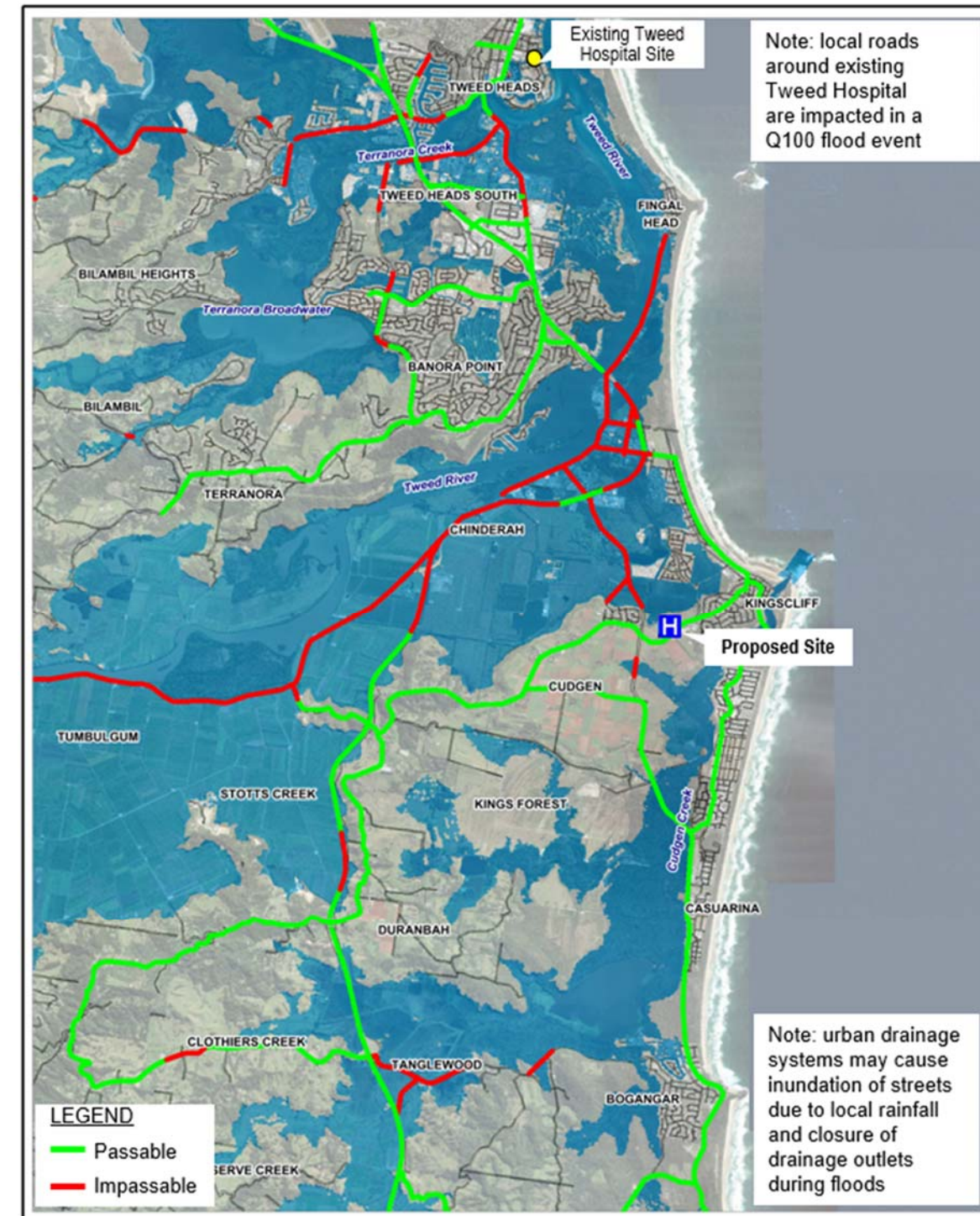
**Figure 16: Road access to the Proposed Site in a Q20 flood event**



In addition to theoretical flood modelling and planning requirements, site selection investigations also looked at the actual impact of flooding on roads and access across the region during recent, real-life flood events.

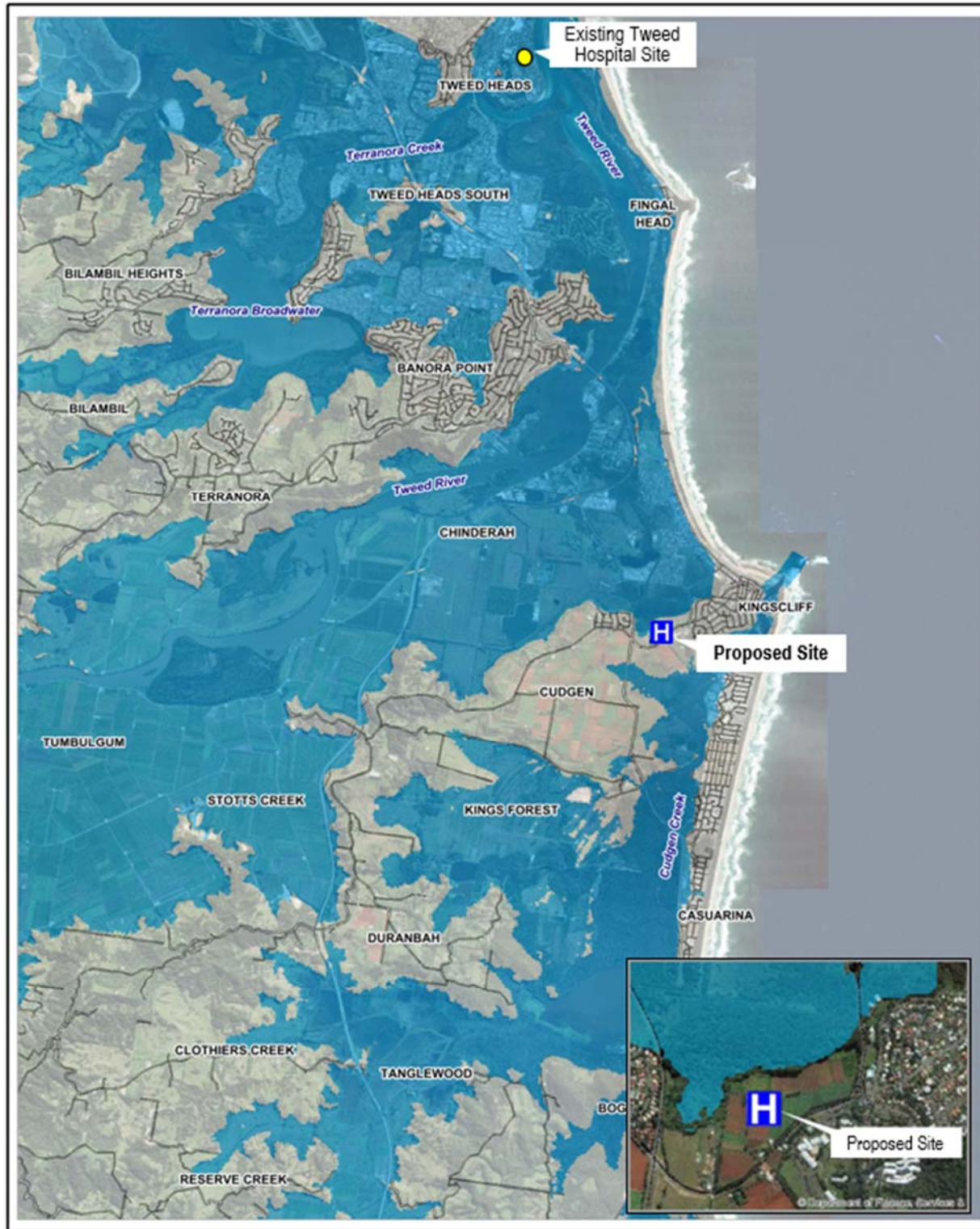
Recent reviews undertaken in consultation with State Emergency Services confirmed that access to the Proposed Site during the 2017 floods was maintained for the population to the south of the Tweed River. The Proposed Site remained well above flood levels; and the TAFE site opposite was used as a major evacuation centre, which registered almost 400 local residents during that time.

**Figure 17: Road access to the Proposed Site in a Q100 flood event**



# Appendix B: Flood Planning Requirements

Figure 18: Probable Maximum Flood



## Why does the new hospital need to be developed above the Probable Maximum Flood level?

Flooding is a key risk across the Tweed Valley region, and the new hospital needs to be developed above the Probable Maximum Flood (PMF) level to ensure that it will not need to be evacuated due to flooding. Being able to bring in essential supplies and ensuring that the major population centres retain access to acute hospital services under less extreme flooding events are also important considerations.

The PMF is the general standard applied to new hospital developments across NSW. It reflects the largest flood that could conceivably occur at a particular location, estimated from probable maximum rainfall together with the worst flood-producing conditions (e.g. highest tides) in that area. Put another way, it is the level of flooding that should never occur, as opposed to flooding that is predicted to occur albeit very infrequently, e.g. flooding predicted to occur on average once in 100 years, which is the standard generally applied to residential developments.

The planning policy framework that imposes this standard on the Tweed Valley Hospital project is outlined below:

### NSW Floodplain Development Manual (2005)

The NSW Floodplain Development Manual relates to the development of flood prone land; providing guidance to local councils in the development and implementation of floodplain risk management processes in accord with the NSW Government's Flood Prone Land Policy.

The Manual is binding on all State Government agencies concerned with the use, development and management of flood prone land, and compels them to comply with Development Control Plans and local floodplain risk management plans prepared by councils, as well as take into account the principles of sound floodplain risk management.

### Tweed Shire Council – Development Control Plan

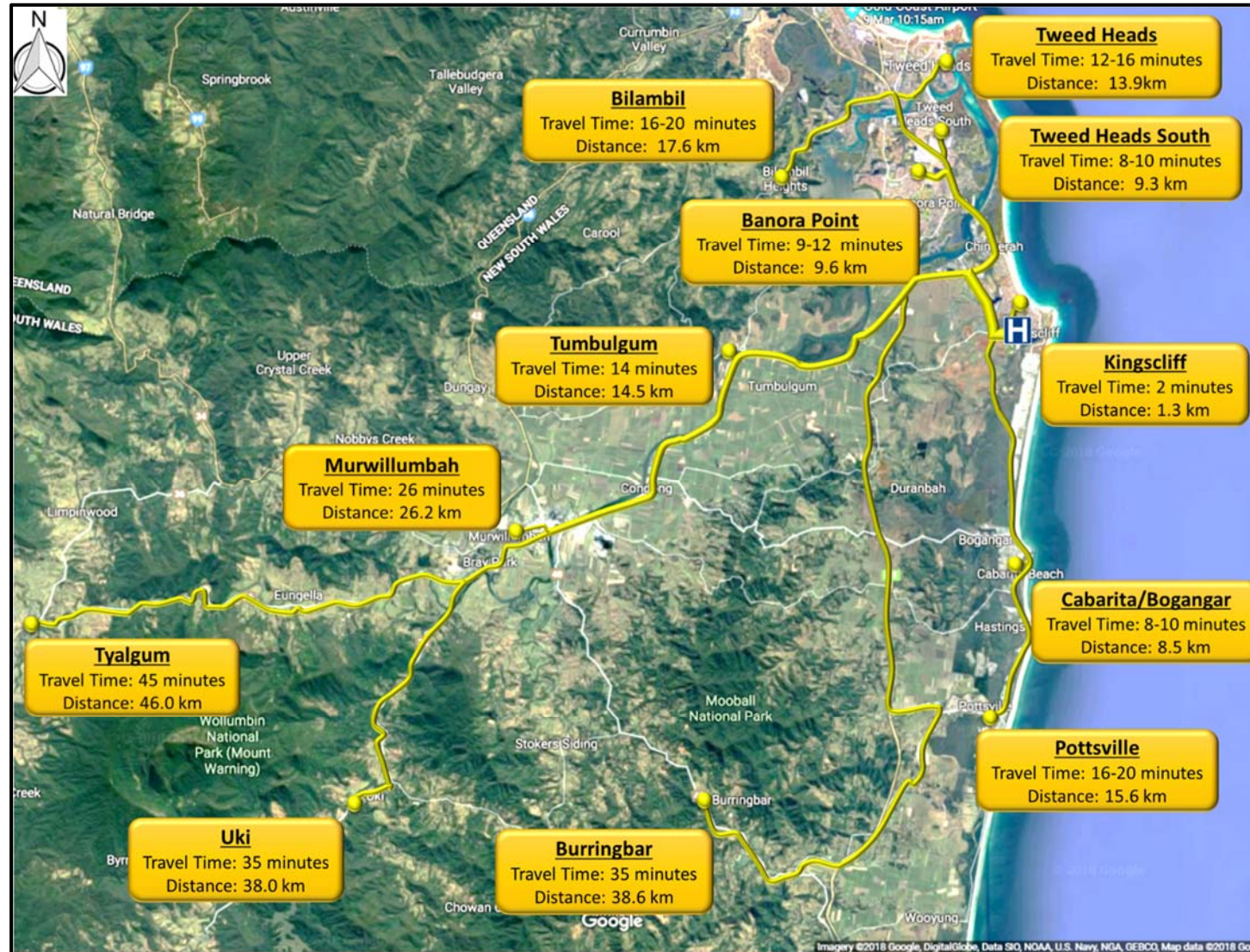
The Tweed Shire Council's Development Control Plan requires all new critical infrastructure and facilities (including hospitals) to be located above the PMF level, unless exceptional circumstances can be justified, such as servicing existing flood prone communities where no practical alternative exists. In such cases, and where the development is a habitable land use, adequate PMF refuge must be provided.



## Appendix C: Travel Times for the Proposed Site

» Travel times from population centres within the Tweed Valley catchment

Figure 19: Travel Times from Population Centres



### Travel time and distances across the Tweed Valley catchment

- Map showing current average travel times to the Proposed Site from population centres on a typical weekday during peak periods (i.e. 8:00am or 4:00pm).
- The majority of the Tweed LGA part of the catchment (70%) can access the Proposed Site by car in under 30 minutes and with an average peak travel time equivalent to the existing Tweed Hospital site.

» Travel times from other hospitals in the region

Figure 20: Travel Times from Other Hospitals



### Travel time and distances between hospitals in the region

- Map showing current average travel times from the Proposed Site to other hospitals in the region.
- Travel times given are for a typical weekday during peak periods (i.e. 8:00am or 4:00pm).