

A2.4 Open Space + Landscape

Landscape design principles are as follows:

Bushland Reserve

- An ecology based reserve will be located along the main drainage line in the estate.
- It will be a bushland park with a dense canopy of existing trees and rich shrubs and ground covers. Retention of existing trees will enhance biodiversity and retain ecological habitat and protect endangered communities.
- The landform of the drainage line will be modified as required to create bio-retention swales and detention basins. The intention is to ensure water quality and quantity of flows into Lake Macquarie has zero impact. Modifications to landform will be carefully designed to minimise impact on the retention of existing vegetation.
- There will be provision for access ways through the Bushland Reserve. This will be done to minimise the need to cut and fill.
- The edge of the Bushland Reserves occur within the Asset Protection Zones. They will provide the potential for additional local recreation places in the form of linear parks with facilities for seating and walking.

Urban Parks

- Two new urban parks will be located on the eastern edge of the site, providing a range of activities that are easily accessible for all residents and visitors, and are contiguous with the conservation lands and the recreation opportunities provided by the foreshore.
 - The central park or Village Green is a 1.4 ha park will suit a range of community recreational activities. It will include large flat areas of grass and small nodes that will be adaptable for markets, fetes and community gatherings.
 - The northern park is a 0.5 ha park located on the north-eastern boundary by the creek bed and will provide terraces of intimate spaces for family picnics and barbeques.

Buffer zones

- A landscape buffer with a variable width of approx. 60m will be provided between the development area and Kanangra Drive. This area will protect the green outlook that motorists currently enjoy and will also protect the sensitive Angophora Inopina vegetation.
- The Foreshore Conservation Area will be retained in its current condition. This will protect views to the site from across the Lake. There will be provision for access ways which will be constructed to minimise the impact of cut and fill and reduce the removal of any vegetation. This will be subject to approval by Department of Environment, Climate Change and Water.

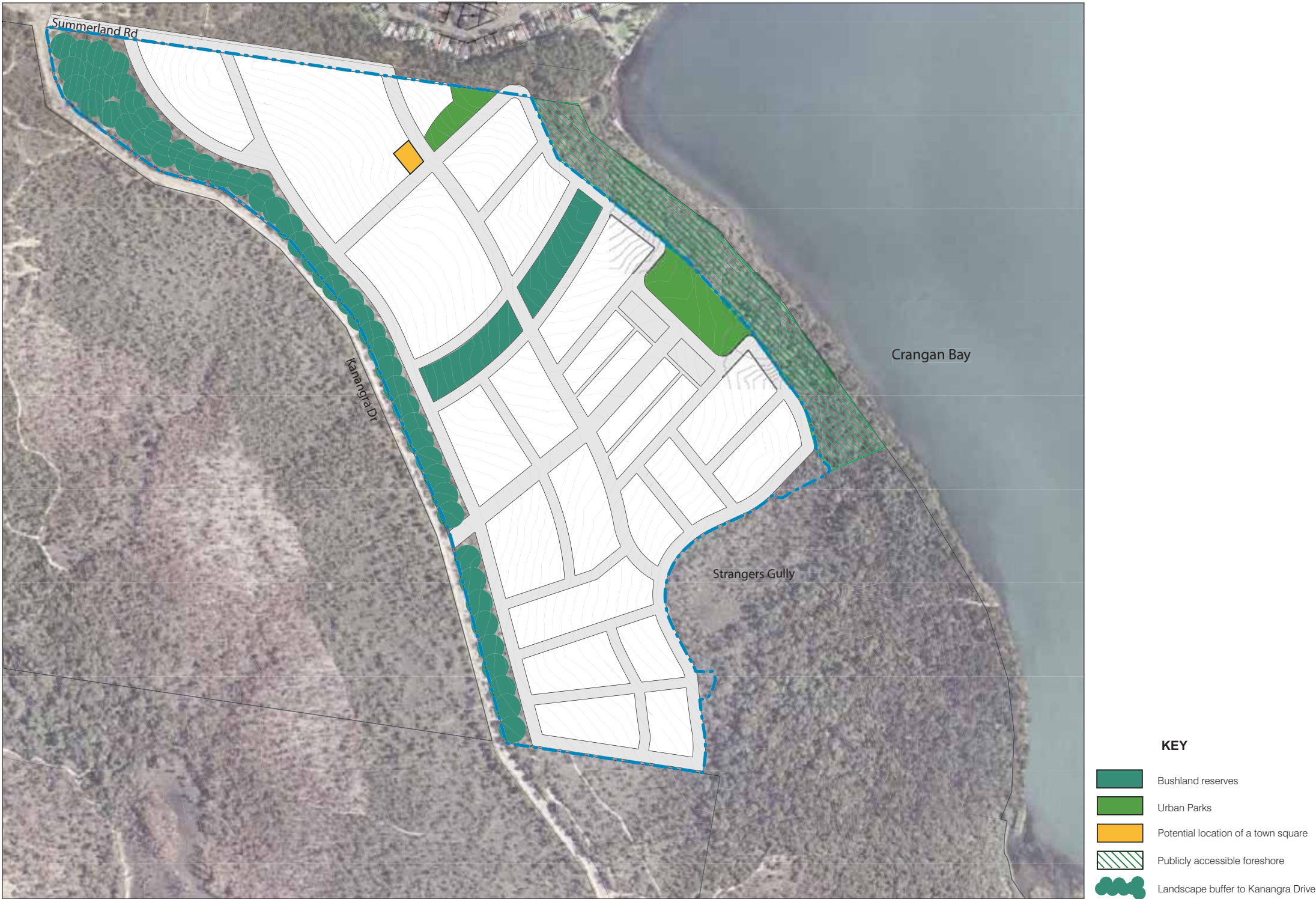


Figure A2.4.1 - Open space and landscape

A2.5 Access & Movement

The street pattern is set up to facilitate legible, safe and permeable pedestrian and bicycle movement and universal access around the site, linking the site with its foreshore, its foreshore parks and the existing services and facilities in Gwandalan.

- Street hierarchy is based on the following:
 - Primary streets include entry roads and a major north-south connecting street. These will be wide streets with medians which have a grand scale to represent their significance in the hierarchy. They will include footpaths on one verge, street tree planting in verges and medians, low ground plane planting, street lighting and parallel kerbside parking. Cycle routes will be shared on-street, in recognition of low traffic volumes.
 - Secondary streets include all local streets. They will include minimal carriageways and verges. They will have a scale that suits the landscape character designations. They will include footpaths on one verge street tree planting in verges, lawn in verges, street lighting at major intersections and parallel kerbside parking. Lanes that are narrow and service integrated housing will be designated as share ways.
- Street lighting will be functional and will focus on minimising light spill without affecting safety, both for vehicles and pedestrians.
- A pedestrian accessway is to be located within the foreshore conservation area as desired by the existing residents of Gwandalan. This accessway will connect the existing settlement of Gwandalan with the hamlets of the Gwandalan estate along the foreshore, maintaining public foreshore access (subject to approval by Department of Environment, Climate Change and Water).
- Street reserves are to be used for reticulation of underground infrastructure services. Bioretention swales are to be located on north-south collector street and on downhill side of streets that edge the Conservation Areas. Swales are to be installed on the downhill side of street reserves that edge Conservation Areas.



Figure A2.5.1 - Street hierarchy

Primary Road
Secondary Road
Tertiary Road



Figure A2.5.2 - Pedestrian and cycle paths

Footpath
Shared on-road cycle route



Figure A2.5.3 - Stormwater treatment

Swales
Bio-swales



Figure A2.5.4 - Lighting

Street and park lighting
Intersection lighting

A2.6 Visual Impact

The development footprint is setback an average of 100m from the water's edge and retains the existing buffer of trees between it and the water. The topography and extent of existing vegetation will ensure that there is very limited visibility of the proposed development from other vantage points of Crangan Bay.

Thus, the retention of the existing landscape along the foreshore protects the scenic quality of the foreshore of Crangan Bay and its contiguous vegetation.

Vegetation buffer along Kanangra Drive screens the Gwandalan Estate from the view of passing motorists, thus maintaining the dominance of landscape on Kanangra Drive.

The hamlets of the Gwandalan Estate are set on a plateau surrounded by taller forest and woodland. This minimises its visibility from the main road, the foreshore, the water ways and existing developments.

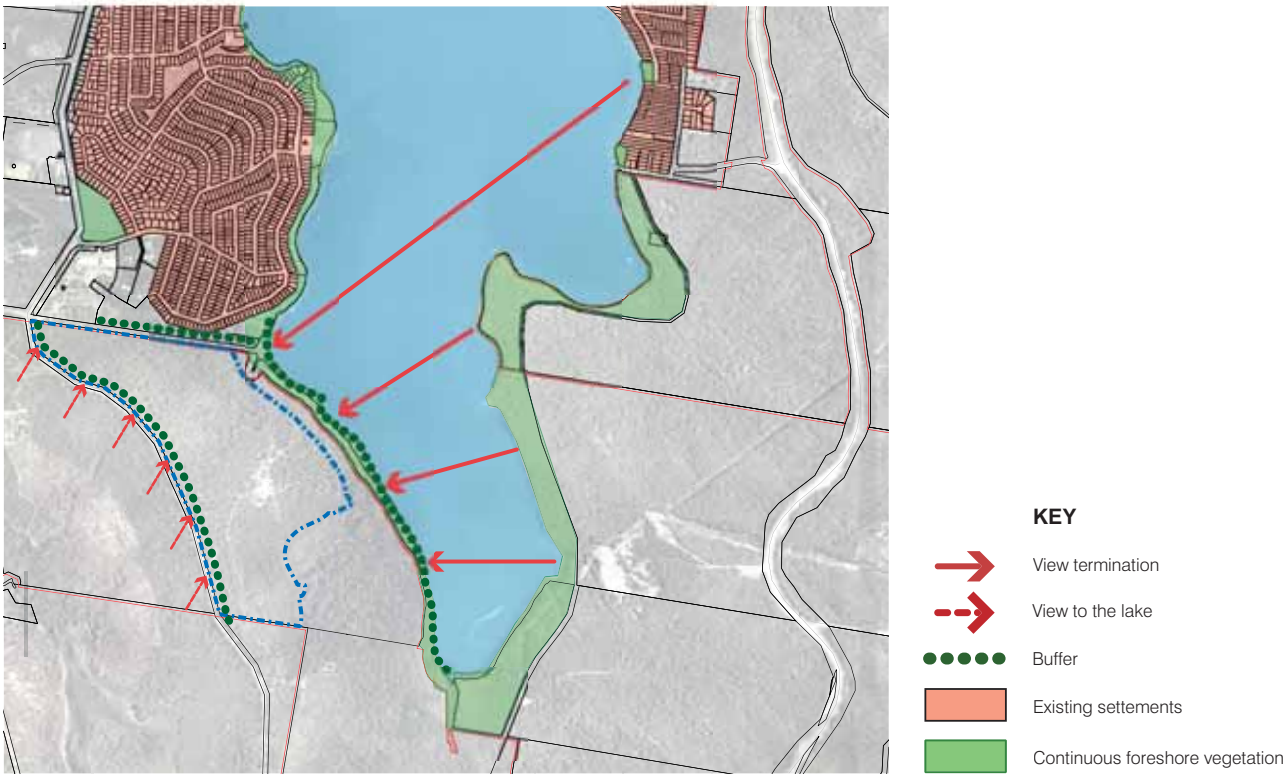


Figure A2.6.1 - Minimal visual impact due to the retention of existing trees within the foreshore reserve



Figure A2.6.2 - Existing views of the site from across the bay



Figure A2.6.3 - Existing views of the site from Gwandalan Lions Park

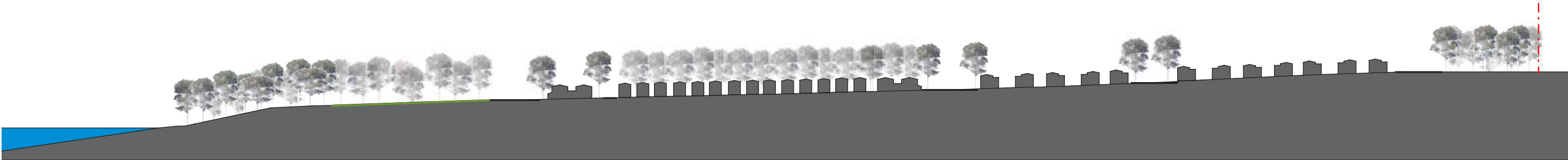


Figure A2.6.4 - Typical west-east section

A3.1 Development Staging

Two development stages have been identified. These stages relate to the two hamlets within the development footprint. Development staging is intended to be done as follows:

- Provision of infrastructure may be undertaken in two packages that service each of the hamlets.
- Lot and superlot development will be subject to:
 - Market demand; and
 - Development of the various stages of infrastructure will be dependent on market demand
- Delivery of the public domain and infrastructure in two stages is intended to be a robust mechanism for development. This ensures that services, roads and landscape are integrated. This benefits future residents and will ensure that with each hamlet has a park and basic access and retail services will be provided.

Stage 1 includes:

- 68 lots ranging in area from 500m² to >900m².Potential for 196 seniors living dwelling units.
- 1600m² gross floor area of retail and associated town square.
- Delivery of the landscape buffer along Kanangra Drive, public domain and infrastructure.

Stage 2 includes:

- 359 dwellings ranging from in area from 300m² to >900m²
- Potential for 1200m² gross floor area of shop-top retail.
- Delivery of the landscape buffer along Kanangra Drive, public domain and infrastructure.

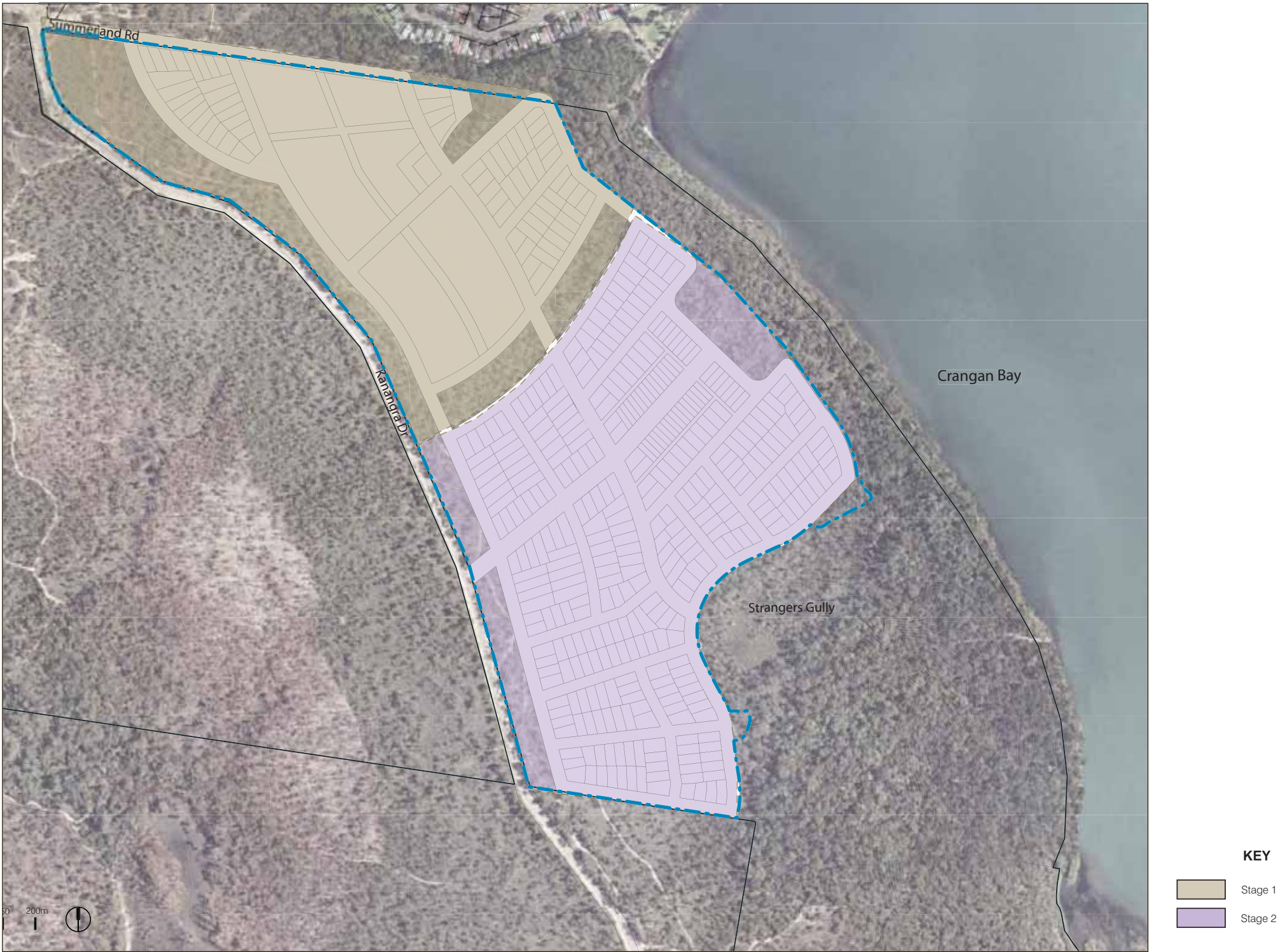


Figure A3.1.1 - Development staging