



An aerial photograph of a modern wastewater treatment plant. The facility features two large, circular aeration tanks with blue water and mechanical structures. A central building with a blue roof and a large parking lot are prominent. The plant is surrounded by green fields and a road. A dark green banner with white text is overlaid on the top right of the image.

7.0 SERVICE INFRASTRUCTURE

7.1 Service infrastructure planning

Future development potential of the identified urban release and employment generating lands combined with substantial infill development opportunities within Kingscliff and Cudgen will place an increased capacity on existing water sewer, telecommunication and electrical infrastructure. A range of different development scenario's and expected population yields need to be considered in relation to the future planning of these infrastructure services.

The efficient delivery, roll out and considered the integrated design of additional required infrastructure needs to be a key consideration within the early design phases of the greenfield development sites. In this regard, Council must consider how to most effectively service the area and provide for future development needs within Council's budget and works program, integrated with appropriate developer participation and contribution.

7.1.1 Existing water infrastructure

The indicative water reticulation system is illustrated in Figure 7.1. The Kingscliff and Cudgen locality's fall within five water zones including Duranbah, Cudgen, Cudgen Booster (Cudgen Village), Kingscliff and Kingscliff Booster (Kingscliff Hill).

The water supply to the Kingscliff District is sourced Bray Park Water Treatment Plant (WTP) and pumped to Hospital Hill Reservoirs in Murwillumbah, but is then transported by different trunk main systems. The area north of Cudgen Creek receives its water from the trunk main located along Tweed Valley Way to a pumping station in Chinderah where it is pumped into the Kingscliff Hill Reservoirs, which is then gravity fed to the urban area. The area south of Cudgen Creek receives its water from the trunk main located along Environ Road to the Duranbah Reservoirs, where it is gravity fed north to Salt, Seaside City and Casuarina and south to other regions.

Future extra storage capacity will be required at the Duranbah Reservoir site and additional transfer capacity (ie: trunk mains) to cater for additional populations forecast to the south of Cudgen Creek. Additional storage capacity is not planned for future populations in Kingscliff to the north of Cudgen Creek, however additional transfer capacity is planned.

Opportunities for water infrastructure expansion include:

- The construction of a trunk main to connect the areas north and south of Cudgen Creek, which will provide an additional source of water during main breaks.

7.1.2 Existing wastewater infrastructure

The indicative sewerage system is illustrated in Figure 7.1. The new Waste Water Treatment Plant (WWTP) was established to the west of the township off Altona Road which has a capacity to treat 6 megalitres per day, equivalent to 25,000 people. The WWTP which services Kingscliff, Fingal, Chinderah, Cudgen, South Kingscliff (Salt), and Casuarina utilises a chemically enhanced biological nutrient removal (CEBNR) process results in a high quality of the discharged effluent. A small percentage of the A Class treated effluent is reused for irrigation purposes at the nearby Golf Course. The remaining treated effluent is discharged into the Tweed River.

7.1.3 Existing electrical infrastructure

Essential Energy is a NSW Government-owned corporation, with Delivery Partners for building, operating and maintaining the electricity network with numerous service providers facilitating individual connections. There are currently no planned service upgrades programmed for the Kingscliff locality in the immediate future. The further extension of electrical infrastructure as part of a staged release of future development sites will be designed and planned as part of the development approvals process

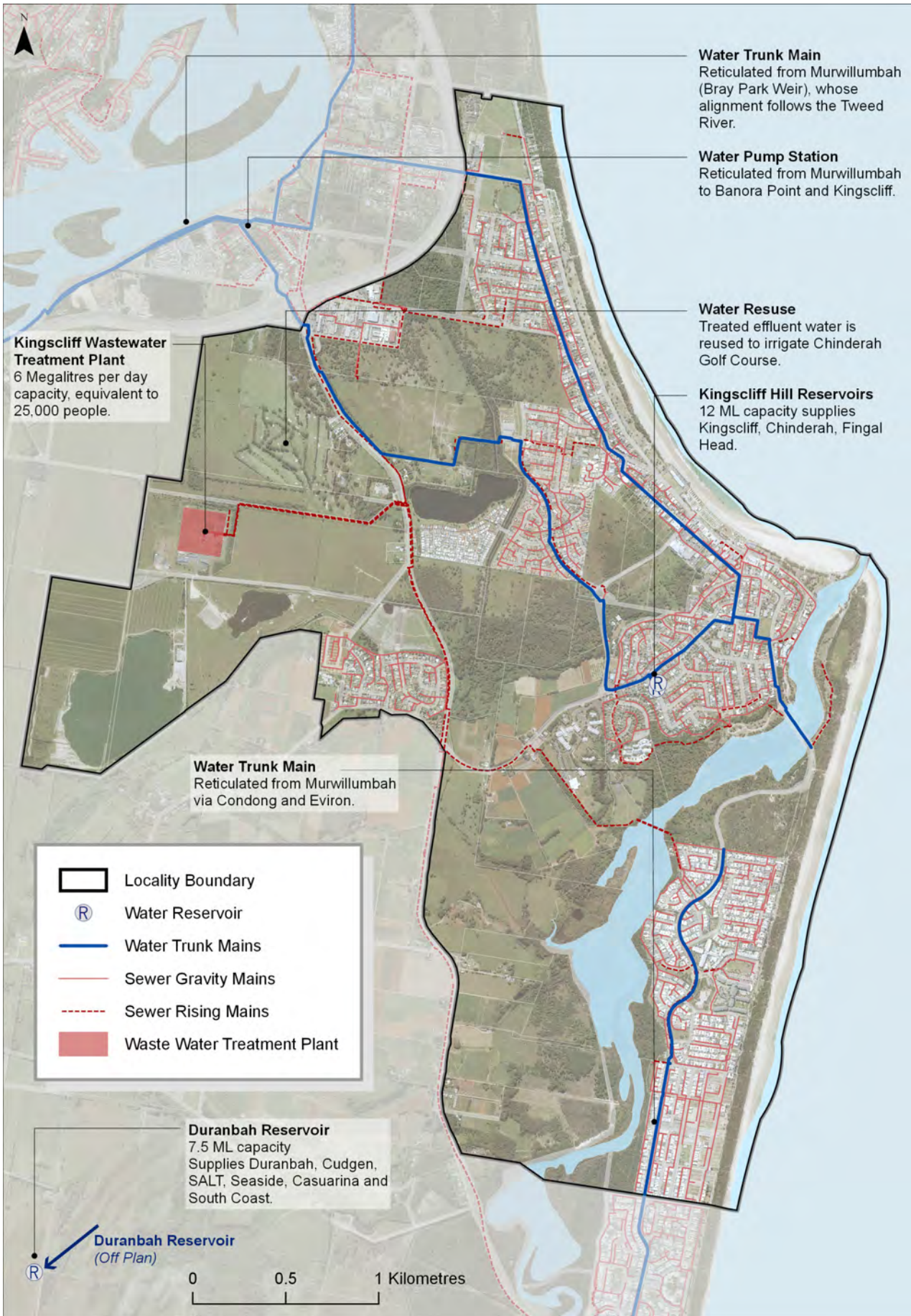


Figure 7.1 Kingscliff water and sewer infrastructure

7.1.4 Existing telecommunication and NBN infrastructure

Once a Government-owned corporation, Telstra which owns, builds, maintains and operates telecommunications networks is now a public company. This network includes Kingscliff's predominantly above ground pole infrastructure. Since the privatisation of Telstra and the deregulation of telecommunications service there are then numerous telecommunication and internet service providers facilitating individual connections.

The National Broadband Network (NBN) is a national open-access data network which is under development and roll out across Australia. It is based on the premise that fixed line and wireless broadband connections are sold to retail service providers (RSP), who then sell Internet access and other services to consumers. Currently, the NBN Co is planning to acquire and build up to 20 fixed wireless facilities across the Tweed Shire including Kingscliff. The fixed wireless system use cellular technology to transmit radio signals to and from a small antenna fixed on the outside of a home or business, which is pointed directly towards the fixed wireless facility (antenna).

7.2 Service infrastructure issues

The ultimate capacity of water and sewer systems will be to provide for a district population catchment of 50,000 people which will include the Kings Forest release area.

The existing water and sewer systems will require increased capacities and staged future planning and upgrades to meet this projected population. In addition to new infrastructure servicing new release areas, the existing water and sewer infrastructure, particularly within older residential estates will also require staged upgrading and improvement to ensure efficient services capable of meeting increased demand.

Conversely an infrastructure servicing issue arises when water and sewer capacity has been provided but greenfield development sites are either not released or released with substantially lower densities than originally planned. This can lead to a costly over provision of infrastructure servicing without a sufficient contribution framework to adequately recover costs. Similarly in a scenario where planned green field development sites are not released or 'withheld' from market, this can result in poor and costly operation of infrastructure which may have a substantially larger capacity than what is being utilised.

It is therefore important that the timing and development of greenfield development sites is closely planned with landowners to ensure provision of infrastructure is in step with need.

7.3 Service infrastructure opportunities

- The construction of a trunk main to connect the areas north and south of Cudgen Creek, which will provide an additional source of water during main breaks. Opportunity to increase water supply capacity at Durambah Reservoir and to meet future population needs.
- Opportunity to for developers to incorporate demand management into their developments, such as third pipe and other reuse strategies, to reduce water demand.
- Opportunity to expand existing Kingscliff Wastewater Treatment Plant to meet future population needs.
- Opportunity for appropriate sites to reuse the Kingscliff Wastewater Treatment Plant A Class water and biosolids.
- Greenfield development sites to incorporate NBN ready infrastructure.

7.4 Infrastructure strategies

1. Progressively implement the design and construction of essential services, including the replacement of ageing infrastructure for Kingscliff and Cudgen and ensure coordinated and efficient delivery.
2. Plan and design service infrastructure within the early design phases of the greenfield development sites.
3. Co-ordinate and integrate water reuse and water sensitive urban design solutions within greenfield development sites and where possible existing urban areas.
4. Maintain a 500m buffer surrounding the wastewater treatment plant restricting any residential development within that buffer. Plant a 10m wide landscape buffer to interface edges.
5. Review s.7.11 Contributions Plans to public domain and community infrastructure projects are funded by developer contributions.