

Attachment B.2

SA Water Infrastructure Summary

**SA Water
Regulatory Business
Proposal 2013**



Contents

1	Description of water assets	3
1.1	Bores and wells.....	3
1.2	Reservoirs	3
1.3	Water treatment plants.....	3
1.4	Water pumping stations	3
1.5	Water storages.....	3
1.6	Water mains	3
1.7	Water connections	4
2	Description of wastewater assets	5
2.1	Wastewater treatment plants	5
2.2	Wastewater pumping stations.....	5
2.3	Sewer mains	5
2.4	Sewer connections.....	5
3	Geographic distribution of assets.....	6

1 Description of water assets

1.1 Bores and wells

SA Water manages 46 separate groundwater systems, 36 of which are deemed to be drinking water supplies. Each of these has its own characteristics and challenges with respect to water quality and aquifer reliability and attributes.

In total, 145 separate bores and wells are installed to manage the water extracted from these systems.

1.2 Reservoirs

Major water storages include reservoirs situated in the Mount Lofty Ranges, and smaller storages in regional areas - ranging from a capacity of only 470ML (Middle River on Kangaroo Island) to 46,180ML (Mount Bold).

The oldest reservoir still in use in the drinking water supply network is Hope Valley, which was completed in 1873. Most were constructed in the late 1800s, and the most recently constructed was Little Para, completed in 1977.

There are 18 separate reservoirs in total.

1.3 Water treatment plants

SA Water has 41 separate water treatment plants operating throughout its water networks. Of these, 6 service the Adelaide metropolitan area.

Capacities of the metropolitan water treatment plants range from 50ML per day (Myponga) to 850ML per day (Happy Valley). In the country the capacities range from 0.3ML per day (Penneshaw) to 200ML per day (Morgan).

The Adelaide plants were generally built during the 1970s-80s. Most of the country filtration plants were constructed from the mid-1990s. Prior to this, water received by country customers underwent only basic chlorination.

1.4 Water pumping stations

There are 252 separate pumping stations operating throughout SA Water's water networks. These transfer water at varying volumes and velocities.

The largest pump stations are used to transfer raw water from the River Murray to Adelaide storages (364-510ML per day) and treated water from the Adelaide Desalination Plant (410ML per day). By way of comparison, a long course Olympic-sized swimming pool has a volume of 2.5 ML.

1.5 Water storages

Water storages include surface level, in-ground or elevated structures situated throughout the water networks. These include concrete tanks and earth bank storages that are lined and covered to preserve water quality. Storages range in size from less than 1ML capacity to 455ML (at Lincoln Gap, near Port Augusta). More than 90% of the storages are less than 10ML in size.

SA Water operates a total of 514 separate water storages.

1.6 Water mains

SA Water maintains water mains spanning a length of approximately 9,100km in the Adelaide metropolitan area, and 17,461km in country areas. These mains include approximately 2,352km of mains classified as "major pipelines". The water mains are predominantly 80mm, 100mm and 150mm in diameter, but can range from 20mm to 2,100mm in diameter.

Mains laid pre-1950 were constructed of metallic, cast iron or steel material. Between 1950 and the early 1980s fibro/asbestos cement pipes were laid, and since 1984 pipes have been a combination of plastic (PVC and polyethylene), ductile iron and steel. Most are fibro cement or cast iron.

Major mains in metropolitan areas are generally below the surface of roads, while in the country they are above ground. The mains network was expanded significantly from the 1950s to 1970s. Approximately 50km of mains are replaced each year across the State.

1.7 Water connections

SA Water meters approximately 661,000 connections to its water networks, and embarked upon a major meter replacement program in the late 1990s to improve accuracy and reliability of the customer meter fleet - replacing nearly all meters.

Most of the initial Actaris meters purchased prior to 2002 are approaching the end of their economic life (about 12 years). The meters installed in the past decade generally have a life of 20 years.

2 Description of wastewater assets

2.1 Wastewater treatment plants

SA Water has 23 separate wastewater treatment plants operating throughout its wastewater networks. Of these, 4 service the Adelaide metropolitan area.

The capacity of these plants ranges from less than 1ML per day to 165ML per day. The introduction of the EPA and licensing in 1993, along with changing community expectations and heightened environmental awareness, has seen major improvements to all metropolitan plants in recent years to target nitrogen reduction.

In country areas, 13 of 19 plants employ old technology that will require major upgrades to meet contemporary effluent quality requirements. Lagoon systems provide a low-cost, low-energy demand solution to wastewater treatment where plants are located away from residential areas and land is available. However, this technology does not easily deliver the effluent quality required by the EPA.

2.2 Wastewater pumping stations

These are predominantly submersible pump stations (513 out of a total of 565) and are often situated beneath the road network.

2.3 Sewer mains

SA Water maintains sewer mains spanning a length of approximately 7,252km in the Adelaide metropolitan area, and 1,434km in country areas. Sewer mains are situated throughout the Adelaide metropolitan area, and in 21 town-specific regional networks.

SA Water has undertaken work in a number of these areas to suppress sewer odours by adding filters to vents, however this has led to an increasing issue with corrosion in some of the pipes. SA Water is investigating alternative venting methods to ensure above-water parts of the network remain dry, while also meeting community expectations regarding odour emission.

Highest priority sewer mains targeted for replacement are old reinforced concrete mains generally located below the groundwater table, where poor soil and more corrosive sewage are the key factors in the deterioration of reinforced concrete.

2.4 Sewer connections

SA Water maintains approximately 503,000 connections to its wastewater networks. These connections are laid from the sewer main to a point usually just outside the boundary of a property.

Wastewater pipe networks are largely gravity-based systems, where pipes are not internally pressurised. This means that the depth of the connection can vary from just over a metre to more than three metres deep.

3 Geographic distribution of assets

Figure 1: SA Water assets, state-wide

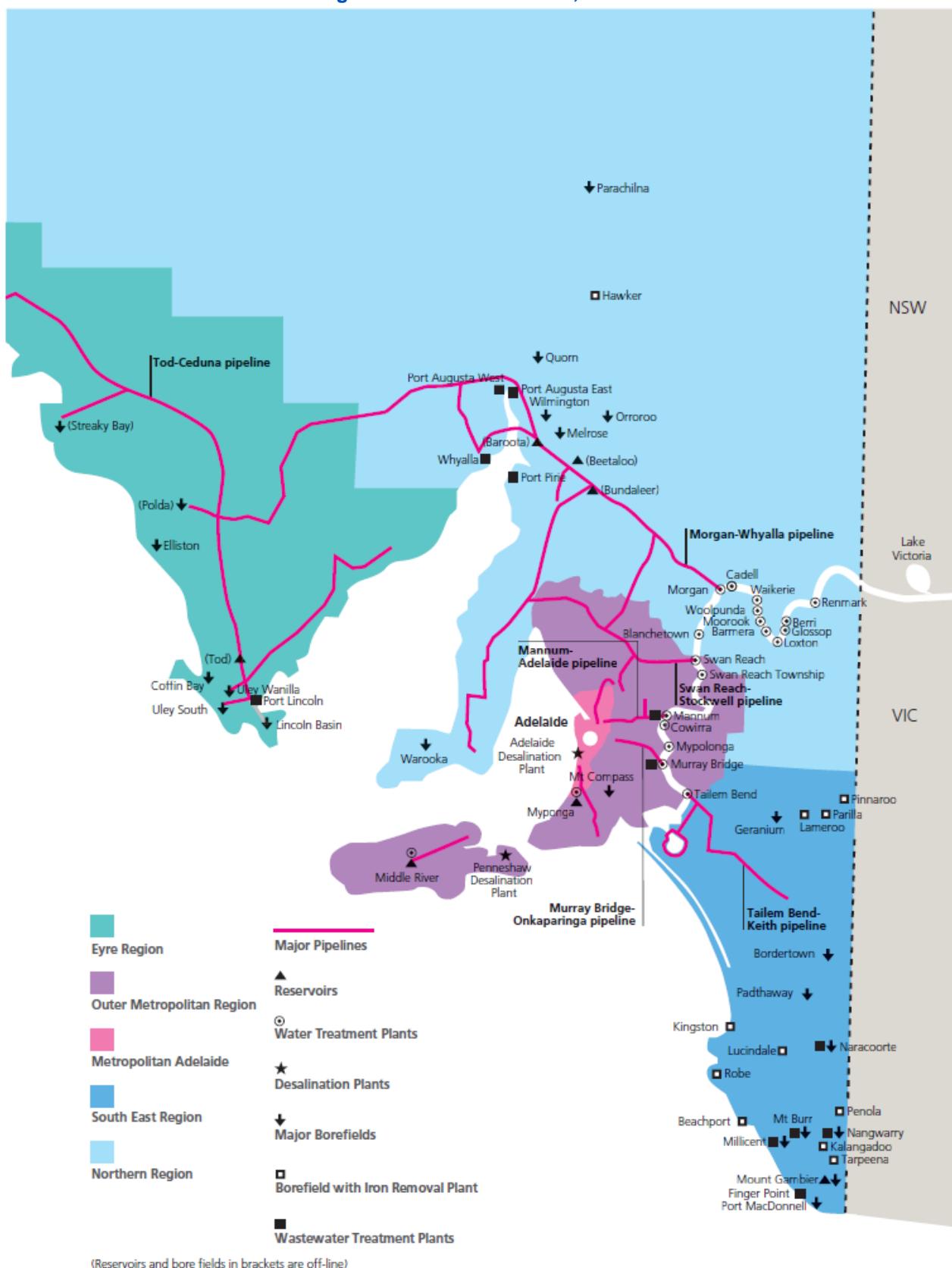


Figure 2: SA Water assets, greater Adelaide area

