#### **Changi Water Reclamation Plant**

Since its commissioning in 2008, Changi WRP has been acclaimed as one of the largest and most advanced water reclamation facilities in the world. Noted for its compact and innovative design features, Changi WRP is built partially underground and its used water treatment facilities are stacked to optimise land use efficiency.

Changi WRP is the cornerstone of the first phase of the Deep Tunnel Sewerage System (DTSS), an important component of Singapore's used water management strategy. It is an underground superhighway that comprises of a 48km-long deep sewer tunnel running from Kranji to Changi and 60km of link sewers. Used water from the eastern half of Singapore is conveyed by gravity through the DTSS for treatment at Changi WRP. The treated effluent is subsequently utilised as feedstock to produce NEWater at two NEWater factories co-located on the roof at Changi WRP. Phase 1 of the DTSS project, inclusive of the construction of Changi WRP, cost \$3.4 billion.

The Phase 2 expansion of Changi WRP slated for completion in end-2024 will expand the treatment capacity of Changi WRP to 246mgd, the equivalent of approximately 450 Olympic-sized swimming pools. The increase in treatment capacity is achieved through the construction of a fifth treatment train and a separate wet weather treatment facility, as well as the incorporation of membrane bioreactor (MBR) technology.

## Background information of new facilities to be constructed under Phase 3 Expansion of Changi WRP

## **Influent Pumping Station**

The influent pumping station (IPS) shall consist of vertical shafts interconnected with concrete tunnels. The shafts at the IPS shall consist of the coarse screen shaft (CSS) and influent pump shaft(s). The horizontal coarse screens (as part of the CSS) will remove large debris, while the influent pumps will pump up the screened used water from the deep tunnel to the liquids modules for further treatment.

# Liquids Modules

The liquids modules will receive used water flows from the influent pumping station for treatment. The liquids modules will consist of Primary Sedimentation Tanks (PSTs) and membrane bioreactors (MBRs), treating screened and degritted used water. Effluent produced after treatment at the Liquids Modules will be used as feedstock for NEWater production and/or discharge to the sea.

#### **Biosolids Treatment Facility**

The biosolids treatment facility will treat the primary sludge and Waste Activated Sludge (WAS) from liquids treatment facilities for energy recovery and disposal. The treatment facility will consist of thickening centrifuges (TCs) and mesophilic anaerobic digesters for stabilisation and biogas production. Subsequently, the digested sludge is then dewatered by Dewatering Centrifuges (DCs), and further dried using rotary dryers for further volume and weight reduction prior to disposal off site.