

SHA TIN

WATER TREATMENT WORKS



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Water Supplies Department

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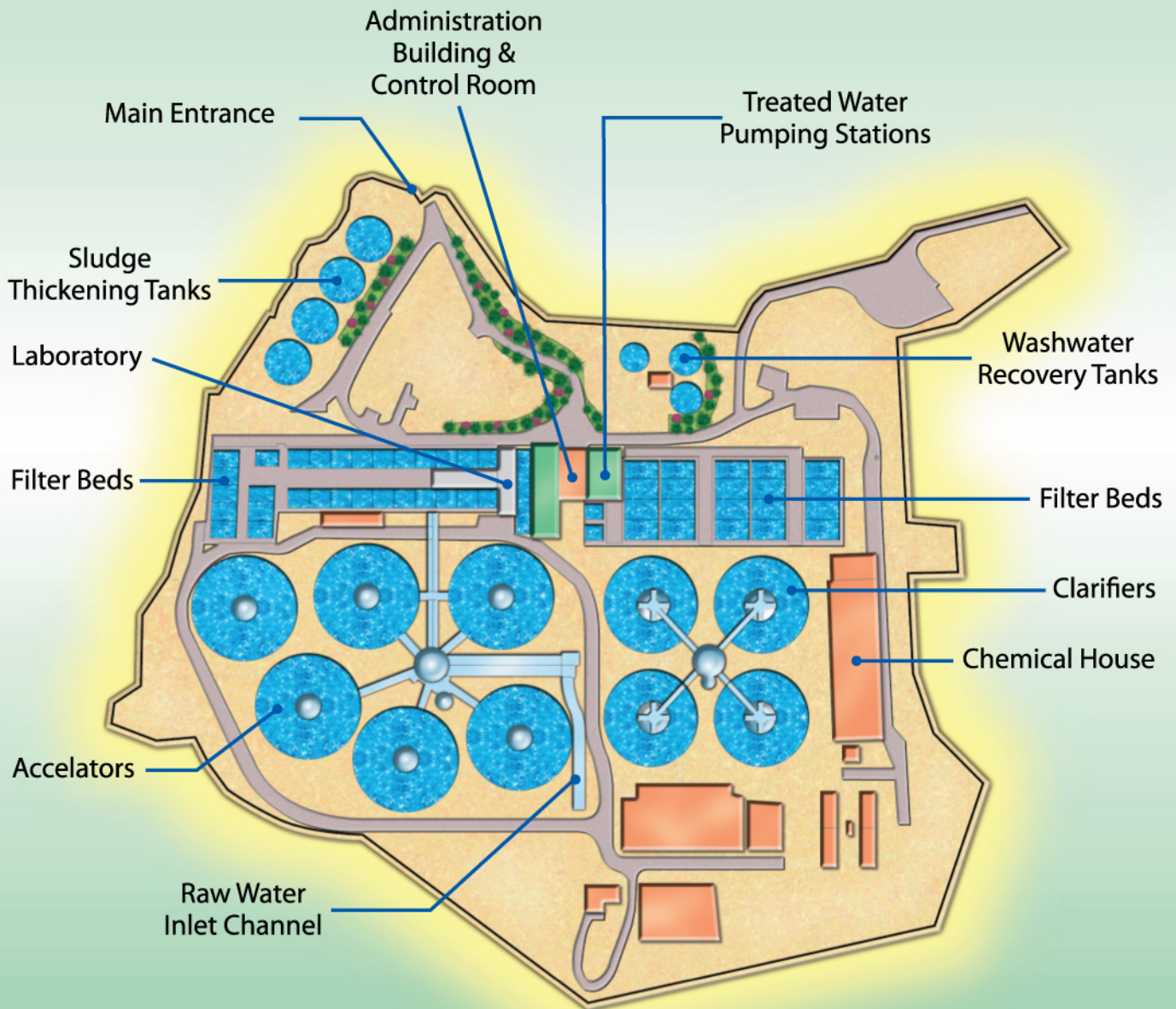
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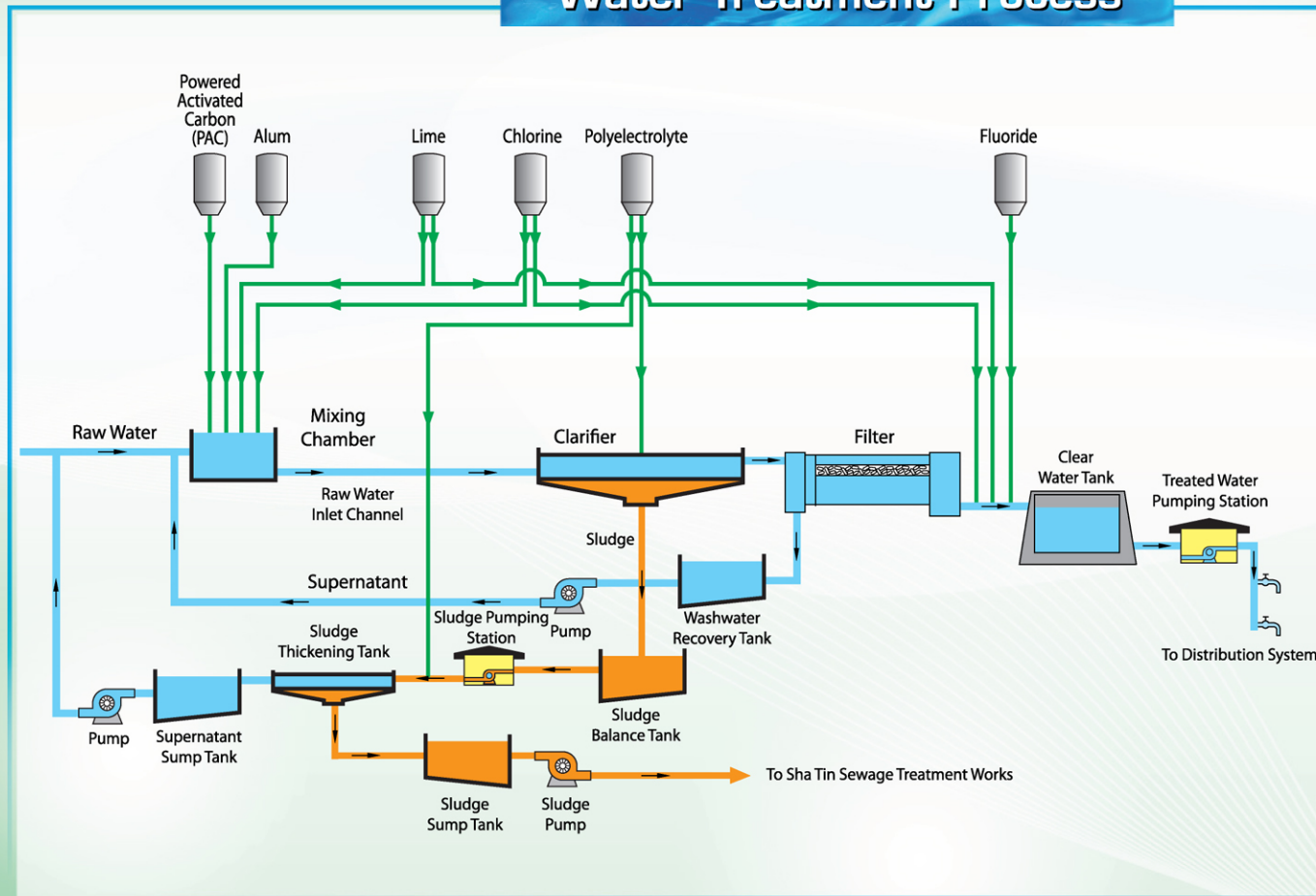
Water Treatment Works Layout Plan



SHA TIN

Water Treatment Works is the largest water treatment works in Hong Kong in terms of daily output capacity. It provides treated water supplies to Sha Tin, Central Kowloon and part of Hong Kong Island. It was first commissioned in May 1964 with a treated water output of 364,000 m³/day. It was then extended in stages and the nominal capacity has become 1,227,000 m³/day since 1983.

Water Treatment Process



1. Raw Water

The raw water treated by the Sha Tin Water Treatment Works comes from five different sources:

- Dongjiang water from Guangdong
- High Island Reservoir
- Plover Cove Reservoir
- Lower Shing Mun Reservoir
- Various catchment intakes

2. Mixing

The raw water is dosed at the inlet of the mixing chamber with the following chemicals:-

- | | |
|--------------------------------|--|
| Hydrated Lime | - to pre-condition the raw water prior to addition of alum |
| Chlorine | - to suppress the proliferation of algae |
| Alum | - to coagulate impurities |
| Powered Activated Carbon (PAC) | - to remove tastes and odours when required |
| Polyelectrolyte | - to assist the coagulation and flocculation of impurities |

3. Flocculation and Sedimentation

After mixing, the water is passed to the clarifiers where coagulation and flocculation of the impurities in the water will occur. With the aid of the dissolved alum, the impurities in the water will coagulate into large particles which settle as sludge.

The sludge is collected and conveyed to sludge thickening tanks for further treatment.



4. Rapid Gravity Filtration

Settled water from the clarifiers flows to the constant rate rapid gravity dual media (sand/anthracite) filters for removal of the more finely divided suspensions (floc particles). Periodically the filter beds are cleaned by backwashing with compressed air and then water.



5. Clear Water Tanks

Chlorine and lime are dosed into the filtered water in the contact tanks to disinfect and control the alkalinity of the final treated water. Fluoride is also dosed for dental protection. The treated water is then stored in the clear water tank.

6. Pumping Facilities

There are two pumping stations with a total of 13 pumps in the Sha Tin Water Treatment Works. The installed pumping capacity is 1,568,000 m³/day. Treated water stored in the clear water tank is pumped to service reservoirs in Sha Tin and Lion Rock service reservoirs group in Kowloon for distribution to consumers.

7. Environmentally-friendly Facilities

To reduce water loss, the washwater is collected in the recovery tanks for re-pumping to the inlet for recycling. Sludge produced in the clarifiers is thickened by four circular gravity thickeners with polyelectrolyte as the coagulant. Thickened sludge is conveyed by two sludge pipes to Sha Tin Sewage Treatment Works for further treatment prior to disposal.



Water Quality Control

The quality of water is closely monitored by means of chemical, bacteriological and biological examinations of water samples taken from treatment works and throughout the supply system to ensure compliance with the Guidelines for Drinking-water Quality recommended by the World Health Organization.