

Rosedale wastewater Treatment plant

Background

Rosedale wastewater treatment plant (wwtp) was commissioned in 1962 to treat the sewage of the North Shore District. It was constructed by the Ministry of Works and includes two reservoirs, the No. 1 & 2 Oxidation Ponds, which are separated by State Highway 1 (Auckland's northern motorway). The general layout of the ponds is shown in Figure 1. The ponds were constructed concurrently with the motorway embankment in expectation of the extension of the motorway from the harbour crossing which opened in May 1959.

The Rosedale wastewater treatment plant is the second largest plant owned by Watercare.

Rosedale wastewater treatment plant was commissioned in 1962 for the purposes of treating the North Shore District sewage.

The works for the ponds were undertaken by the Ministry of Works. The section of motorway embankment required across the junction of Ponds 1 & 2 was completed at the same time, ahead of the linked sections of motorway which were to follow later.

The initial design was carried out by Worley, Downer Muir and Associates.

The site, in as far as dam safety is concerned, comprises:

- Pond 1
- Pond 2
- Pond 1 dam embankment
- Dam between Pond 2 and the stormwater tunnel
- Emergency spillway alongside the Pond1 dam embankment
- Diversion around the two ponds
- Diversion from the Splitter Chamber to the drop shaft
- Drop shaft and tunnel to the ocean outlet
- Input to Pond 1 from the treatment plant
- Conduit running between Pond 1 and the downstream face of the pond 1 embankment.

Stormwater inflow dams close to Pond 2 are:

- Apollo Drive
- Pond 5 (Atlas)
- Pond 6 (Vega)
- Pond 7 (ARC Refuse)
- Pond 8 (Constellation Reserve)
- Collector drain.

The ponds originally provided treatment of the raw sewage within the ponds. Today the treatment is limited to UV polishing of the final water from the plant.

The ponds are normally used to transmit the final water from the plant to a UV plant which discharges to an outlet leading out to sea. The natural UV treatment within the ponds reduces the rate of Treatment required in the artificial UV plant.

Rosedale embankment dam

The earth fill dam was originally constructed as a homogeneous earth fill embankment. Near the eastern extent of the dam, the embankment crosses two original stream beds and the embankment height increases to around 14m in this area.

Following evidence of internal erosion in the embankment, a filter layer was installed along the taller sections of the dam in 1990. In 1994 the crest was raised 600 mm to prevent overtopping during Probable Maximum Flood (PMF) inflows.



The total embankment is approximately 1 km long, and retains approximately 1,750,000 cubic meters of treated wastewater.

When constructed the dam was located in a rural area. The territorial local body responsible for the area allowed development to take place below the dam and there are now about 1,800 persons at risk in the event of a dam breach.

The northern motorway, which was completed sometime after the completion of the wastewater dam, divides the treatment pond into two. Major capacity increases to the motorway crossing are now under way.

The dam has an overflow spillway which can cope with the PMF, but the objective is to prevent any excess water passing over the spillway weir. The current outlet to sea has a capacity of twice the normal maximum inflow.



