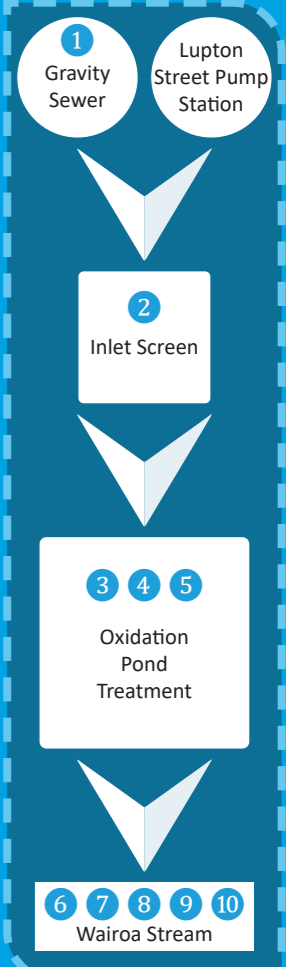


Te Waipara me te Whakapai o Wairoa iti

Waverley Wastewater and Treatment



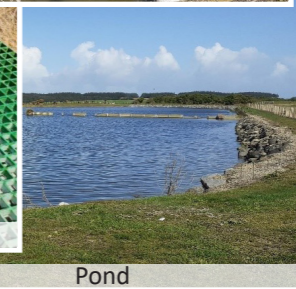
Sewer Network and Lupton Street Pump Station 1

Waverley wastewater is collected from homes and businesses by a network of pipes which lead to the Wastewater Treatment Plant on Ōturi Road. Blockages in the sewer pipes can lead to overflows and odour complaints. The main cause of blockages are fats and wet wipes/nappies. Stormwater (rainwater) getting into the sewer pipes is also a problem, so smoke is used to identify sub-standard gully traps and illegal stormwater connections (i.e. connections where house stormwater runs into the sewer pipes).



Wastewater Plant 2

The amount of incoming sewerage is measured. It then passes through a screen and a press before entering a single oxidation pond for treatment. Screened solids are taken to landfill.



Water Quality Testing 9

The Pond and receiving waters are tested by the Council for:

- Bacteriological
- Oxygen Demand
- Chemical Oxygen Demand
- Suspended Solids
- Faecal coliforms
- Escherichia coli
- Ammonia
- pH
- Dissolved Inorganic Nitrogen
- Total Nitrogen
- Total Phosphorus
- Enterococci

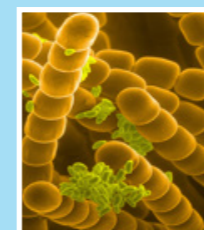
The Taranaki Regional Council also do independent monitoring.

Effects on the receiving environment 10

From a recent scientific study - samples taken upstream and downstream of the discharge, indicate "from an ecological perspective the receiving environment appears to be able to assimilate the WWTP discharge, as there have been no significant effects on aquatic life."



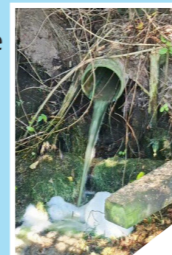
Pond Treatment Process 3



Aerobic wastewater treatment ponds depend on algae, sunlight and wind to provide oxygen for the microorganisms that feed on and breakdown the wastewater (thereby reducing the level of contaminants by natural processes). The ponds stay aerobic during daylight hours to help the treatment process. The most useful indicator of this is the dissolved oxygen (DO) levels which are monitored in the pond. Sunlight and time also help to remove pathogens and for this reason, hydraulic retention time (see 5) has a large impact on the level of treatment. Over time there is a build-up of solids (sludge) on the pond floor and this needs to be managed to allow sufficient capacity in the pond for efficient treatment and retention time. To break down the solids we add bacteriological enzymes which turn the sludge into water and carbon dioxide.

Pond Discharge 7

The pond discharges the treated wastewater to the Wairoa Stream. The treated wastewater is tested and monitored for the parameters (outlined in 9).



Pond Outlet 6



Hydraulic retention time (HRT) 5

Hydraulic retention is the number of days wastewater spends in the treatment ponds. In an ideal pond, the wastewater enters the pond at one end, travels around the pond and having been everywhere, passes through an outlet. In this case, the HRT can be calculated by dividing the volume of the pond by the flow. The recommended HRT is 20 days. The Waverley Pond surpass this and consequently has good quality effluent.

Dissolved Oxygen (DO) 4

Dissolved oxygen levels in the pond are continually measured.



Surrounding Environment 8

The Wairoa Stream flows to the downstream Ihupuku Wetland area.

