Lakes Entrance Wastewater Treatment

FACT SHEET

Lakes Entrance oxidation lagoon

Background

The Lakes Entrance Wastewater Treatment Plant came in to operation in 1978, following the development of an extensive sewer system. Today, the treatment plant collects sewage, or wastewater, from the townships of Lakes Entrance, Kalimna, Lake Bunga, Lake Tyers Beach and the Lake Tyers Aboriginal Trust. The treatment plant is designed to treat seasonally fluctuating sewage loads, with the volume of wastewater treated dependent on tourist numbers and peaks during summer and Easter.

Wastewater collection

Wastewater is collected from Lakes Entrance, Kalimna, Lake Bunga, Lake Tyres and Lake Tyers Aboriginal Trust by gravity sewers and pumping stations. From here, sewage enters the wastewater treatment plant. There are four stages involved in the treatment process. Throughout this process, the water is treated to a standard where it can be put to beneficial reuse. In fact, East Gippsland Water boasts 100 percent reuse across its eleven wastewater treatment plants.

Wastewater treatment

Pre Treatment: Screens at the inlet structure remove larger materials such as rags, paper and coarse materials from the wastewater. The material is then washed, compacted and bagged. The wastewater then flows through a grit chamber where sand, grit and gravel settles out ready for similar disposal, with the liquid continuing into the primary sedimentation tank.

Primary Treatment: Here the speed of the wastewater slows and allows settle-able solids to sink to the bottom (primary sludge). The process removes up to 60% of suspended solids and up to 100% of settle-able solids. The solids are then drawn off and passed to the Sludge Lagoon for treatment.

Secondary Treatment: From the primary sedimentation tank, wastewater flows to the mixing tank. The mixing tank also receives recycled effluent from the Primary Lagoon enabling continuous operation of the filters and a second round of aerobic treatment for the wastewater. From the mixing tank wastewater passes through a trickling filter - a bed of stones 100mm in diameter packed to a depth of two metres. The effluent is collected by an underground drainage system. The stone bed is supplied with air from ventilation shafts around the filter.

The stone acts as a suitable surface where micro-organisms (predominately bacteria) grow. Bacteria obtain nutrients from the settled wastewater and oxygen from air circulating in voids between the stones. The stone becomes covered with growing micro-organisms which eventually break away due to anaerobic conditions occurring against the stone face. Micro-organisms biomass can then be settled out.

Effluent from the Trickling Filters then passes to Humus Tanks where bacterial growth settles (biomass forms humus sludge) and is drawn off to the Sludge Lagoon for further treatment.

Sludge from the Primary Sedimentation Tanks and the three Humus Tanks is drawn off to the Sludge Lagoon for anaerobic digestion.

Effluent from the final Humus Tanks flows to the Oxidation Lagoon. Water quality is improved with oxygen from the atmosphere and an aerator.

Tertiary Treatment: Effluent is then passed to the polishing lagoon where it is held for 20-60 days (depending on the time of year). It is then released to local golf courses for irrigation or passed to the winter storage lagoon at Bruces Track for future irrigation on a farm. All reclaimed water meets EPA environmental standards for irrigation.

Beneficial reuse

Water is pumped via a rising main to a winter storage basin at Bruces Track Farm from here this water is used from September to May via long lateral, fixed sprinkler and centre pivot irrigators.

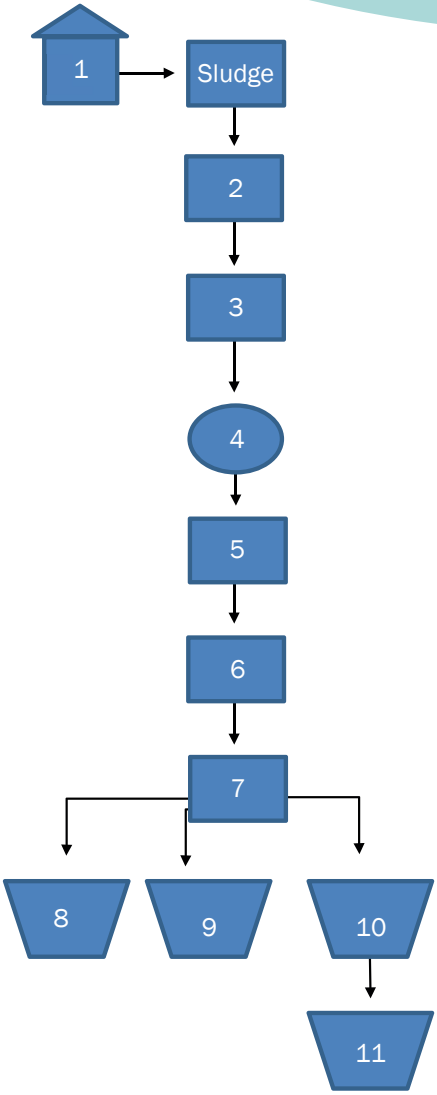
Both Lakes Entrance golf clubs use treated wastewater to irrigate fairways, greens and tees.

Permits are also granted to farmers for private re-use of treated wastewater.

For more information-

Contact East Gippsland Water on 1800 671 841 or by emailing egw@egwater.vic.gov.au

Alternatively visit the Bairnsdale office at 133 Macleod Street, Bairnsdale on weekdays during business hours.



Legend:

1. Wastewater from Lakes Entrance and surrounds
2. Pre-treatment stage
3. Primary treatment stage (Primary Sedimentation Tanks)
4. Final lagoon stage
5. Mixing tank
6. Secondary treatment stage (Trickling filter) Humus tank
7. Humus tank
8. Lakes Entrance Golf Course
9. Lakes View Golf Course
10. Bruces Track storage
11. Irrigation