

Lakes Entrance

Wastewater treatment plant

Background

Lakes Entrance Sewerage Authority was formed on May 10, 1971 but the Wastewater Treatment Plant (WWTP) adjacent to Golf Links Road did not commence operation until 1978 following development of an extensive sewer system. The WWTP now collects sewage from various catchment areas including Lakes Entrance, Lake Bunga and Lake Tyers Beach, and sewage is also pumped to the plant from Kalimna. Sewage is pumped to the WWTP via 45 pumping stations and mutrators. The WWTP serves in excess of 4,000 sewer connections.

Wastewater treatment process

Sewage from nearly all connected properties flows by gravity to pumping stations and mutrators that pump the sewage (wastewater) to the Lakes Entrance WWTP. At the plant the objective is to reduce organic and bacteria levels in raw sewage by means of various processes but to a standard suitable for subsequent irrigation to Lakes Entrance Golf Course and East Gippsland Water's Bruces Track farm (18 kilometres away). Wastewater, as the name suggests, contains 99.9% water. Treatment processes involve separating that water from the 0.1% organic matter.

Screens, grit chamber, sedimentation

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 before transport by contractor to landfill. The wastewater then flows through a grit chamber where sand, grit and gravel settles out ready for similar disposal.

Primary sedimentation tank

This slows the speed of the wastewater through the plant and allows settleable solids to sink to the bottom (primary sludge). The process removes up to 60% of suspended solids and up to 100% of settleable solids. The solids are then drawn off to the Sludge Lagoon for treatment.

Mixing tank

From the sedimentation tank, wastewater flows to the mixing tank. The mixing tank also receives recycled effluent from the Sludge Lagoon enabling continuous operation of the filters and a second treatment of the wastewater.

Trickling filters

From the Mixing Tank wastewater passes through a Trickling Filter - a bed of stones 100mm in diameter packed to a depth of two metres. It is drained by an underground drainage system to collect filter effluent. 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 an anaerobic condition occurring against the stone face. Micro-organisms biomass can then be settled out.

Humus tanks

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

Sludge lagoon

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

Primary oxidation lagoon

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

Polishing lagoon

Effluent is held in the polishing lagoon for 35-60 days (depending on the time of year) before release for golf course irrigation or winter storage for irrigation at the Bruces Track farm during the irrigation season. The reclaimed water meets EPA environmental standards for irrigation.

For further information:

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24 Hour Emergency: 1300 134 202

Fax: (03) 5150 4477

E-mail: egw@egwater.vic.gov.au

Visit our website:

www.egwater.vic.gov.au



PLANT SITE:

Golf Links Road, Lakes Entrance
Ph: (03) 5155 1367

HEAD OFFICE:

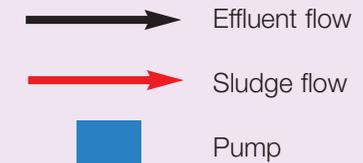
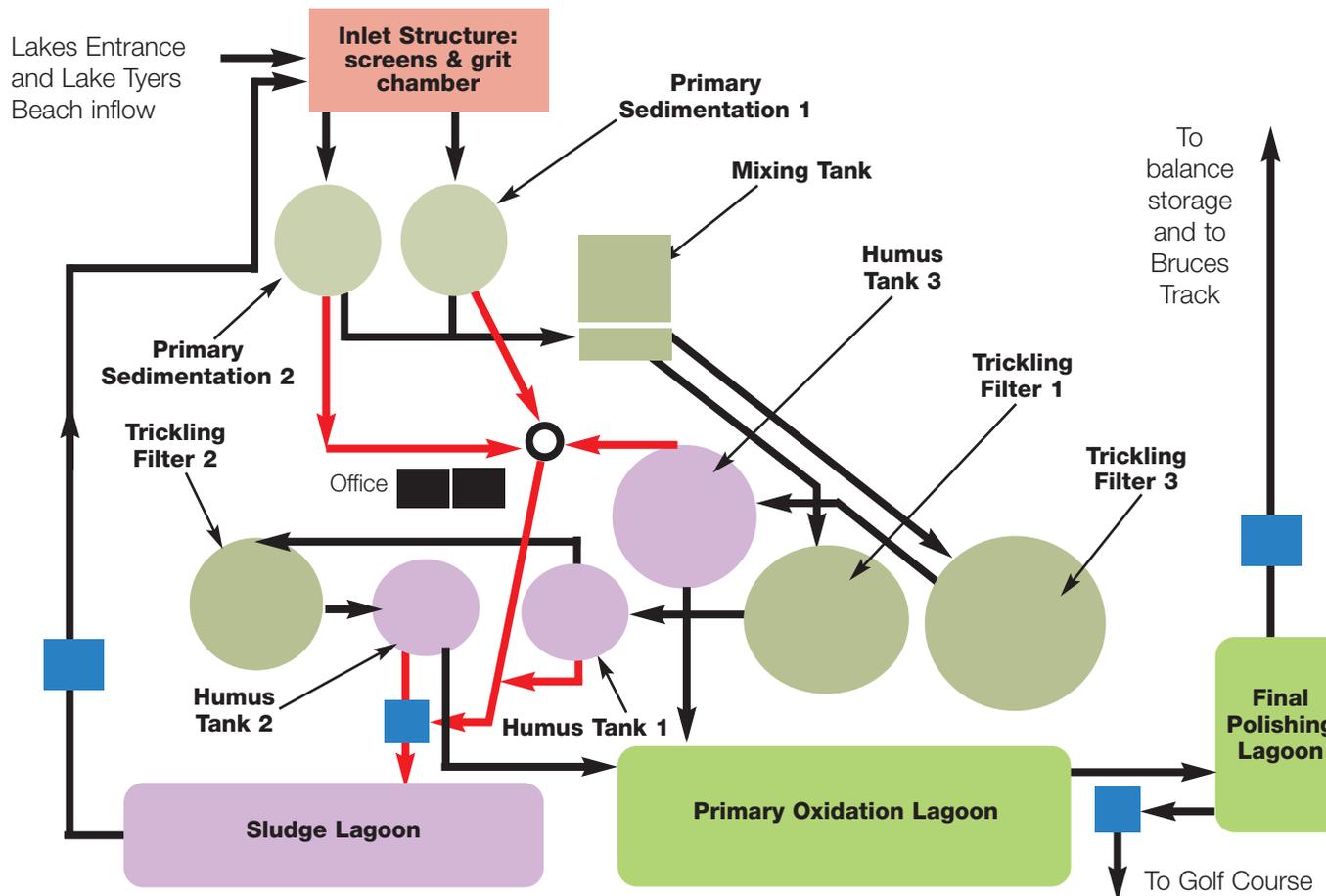
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Lakes Entrance wastewater treatment plant

Schematic diagram

EAST GIPPSLAND WATER



SOME FACTS AND FIGURES

Average Daily Dry Weather Flow = 1.9 ML/day
 Raw Sewage B.O.D. = 250 mg/l
 Raw Sewage Suspended Solids = 300 mg/l
 Final Effluent Ave. B.O.D. = 20 mg/l
 Final Effluent Ave. Suspended Solids = 3 mg/l
 (at Bruces Track)

E.P.A. EFFLUENT DISCHARGE LICENCE

Maximum Discharge Flow Rate = 2.7 ML/d
 Maximum B.O.D. = 50 mg/l
 Maximum Suspended Solids = 50 mg/l
 B.O.D. = Biological Oxygen Demand
 ML/d = megalitres per day
 - data based on 2002-2003 values
 mg/l = milligrams per litre

REUSE OPTIONS

- 1 Pumping via a rising main to the winter storage basin at Bruces Track Farm. From September to May irrigation on the 254 Ha farm is via long lateral, fixed sprinkler and centre pivot irrigators.
- 2 Both Lakes Entrance golf clubs use treated wastewater to irrigate fairways, greens and tees (in accordance with Government regulations)
- 3 Permits have been granted to farmers for private re-use of treated reclaimed water.