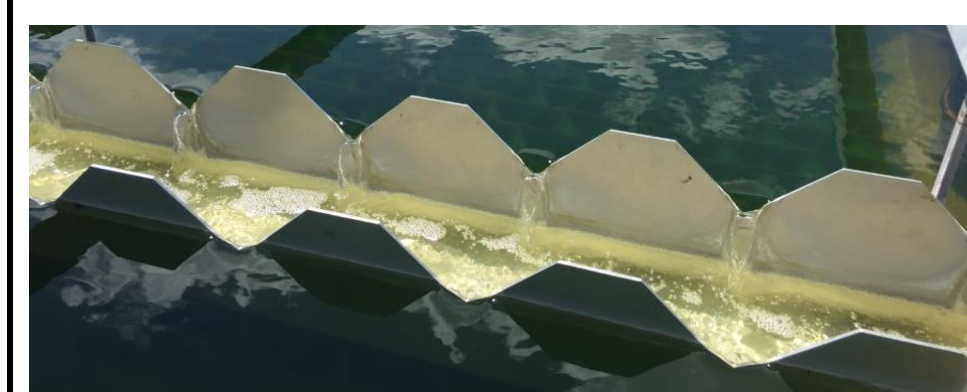
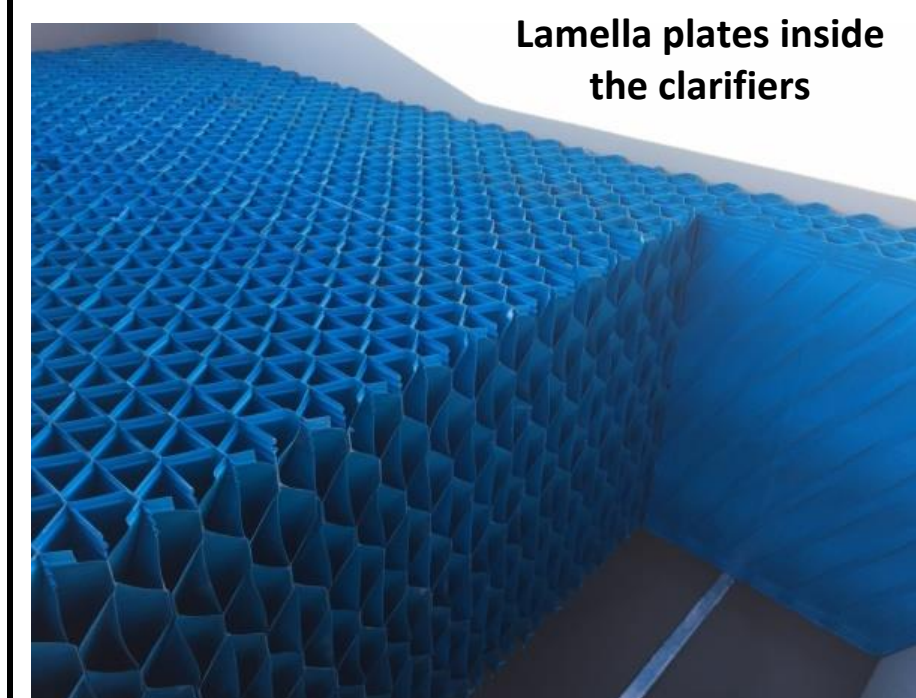


WAIPUKURAU WASTEWATER TREATMENT PLANT



Clean wastewater at the top of the clarifier



Lamella plates inside the clarifiers



The lamella clarifiers are packed with lamella plates. After aluminium sulphate (alum) is added to the wastewater, it is pumped into the bottom of the clarifiers. The alum makes the components dissolved in the wastewater into particles. As the wastewater rises through the plates, the velocity of the water slows sufficiently for the particles to settle down to the bottom of the clarifier, while clean wastewater goes out of the top of the clarifier. The clarified wastewater then goes to the sand filters for polishing.



FILTER PLANT

Four sand filters take out the solids. The filters are Toveko continuous gravity flow media filters from SH+E UK Ltd and were built in the Czech Republic. The sand is continuously cleaned in the filter so that the filtering can carry on 24 hours per day.



ULTRA VIOLET DISINFECTION

Finally the treated wastewater passes through two ultraviolet lamps which kill any pathogens left in the wastewater. The final treated wastewater is discharged into the Tukituki River.

FINAL
WASTEWATER
OUTLET TO RIVER

YOU ARE HERE



1 PUMPING STATION RECEIVES
WASTEWATER FROM TOWN

2 WASTEWATER IS PUMPED
FROM PUMPING STATION
INTO POND

The flow of wastewater is directed by the baffles, which extend from the surface to the floor of the pond. The pond is an average of 1.3 metres deep.

FACULTATIVE AREA

In the facultative area many organisms process the waste in the wastewater, and oxygen is added by the aerators to help this processing. The main target here is BoD reduction.

4 BIOLOGICAL ATTACHMENT SURFACES (BAS) -
NITRIFICATION ZONE



AERATOR

BAS CURTAINS

BAFFLES

The BAS area has many curtains hanging in the water. They are called "biological attachment surfaces" or BAS. There are 12,800 square metres of curtains with a total surface area for biological growth of 296,000 square metres (60 football fields in area). The large surface area of the curtains creates an intense biological treatment area with about 3,000 species growing on the curtains. More intense aeration is also added to help the treatment process.



Curtains are made from extruded non-woven recycled plastic bottles

NITRIFICATION - DE-NITRIFICATION

The main treatment target in the BAS and the floating wetland area is the reduction of ammonia. The ammonia becomes a gas and rises into the air. This natural biological process is called nitrification and de-nitrification.

5 FLOATING WETLANDS - DE-NITRIFICATION ZONE



The floating wetland is a floating cover that stops sunlight and wind from disturbing the wastewater. Plants are planted into floating rafts. The plants are NZ native carex. Their large root structure hanging in the wastewater provides surface area for organisms to grow on. The lack of sunlight and wind action reduces the suspended solids (particles in the wastewater) content of the wastewater.



The floating covers with no plants on are made from recycled rubber.



The rafts that the plants are planted into are made from recycled plastic bottles that have been extruded and woven.

THE FINAL RESULT

Treated wastewater is tested for:

- pH
- Suspended solids - SS
- E.coli
- Biochemical oxygen demand - BoD
- Ammoniacal nitrogen - ammonia
- Soluble reactive phosphorus - SRP

Council also samples the river water quality.



Wastewater received at the treatment plant looks like this

Treated wastewater discharged into the Tukituki River looks like this