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WATER FOR LIFE

Fact Sheet

# Westbank Water Treatment

SEQ Water Grid
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## The Water Journey

On your tour of Seqwater Mt Crosby Westbank Water Treatment plant you will see how our drinking water gets from “catchment to your tap” from the source to supply.

You can follow the water on its journey from Wivenhoe Dam to the Brisbane River where it is pumped out at Mt Crosby treated and dispersed for distribution to your home. Watch out for all the processes along the way.

## The Catchment

The catchment area that drains into Wivenhoe Dam collects not only water but also pollutants in the
Form of soil, chemicals as well as other debris and microorganisms. The water that is stored in Wivenhoe
is released as required into the Brisbane River and makes its way to Mt Crosby weir on the Brisbane River where it begins the journey of undergoing treatment to become our drinking water.

Mt Crosby Weir and the Brisbane River

## Pumping the water.

There are two pumping systems at the Westbank Treatment Plant. The first system lifts the untreated water after it flows through a trash screen that is made up of 25mm mesh from the river to the treatment plant.

Three pumps are located in **pump wells** 34 metres deep, each with a capacity of 125 million litres per day. This water is pumped in from the same level as the bottom of the Brisbane River. Only two of these pumps operate at one time with a third being a backup pump.

Mt Crosby, 34 metre deep pump well.

The second pumping system lifts the treated water from the Westbank plant to large 90 megalitre pure water storages at Cameron’s Hill after treatment has taken place.

There are two large pumps, each with a capacity of 125 million litres per day and four smaller pumps, each with a capacity of 44 million litres per day.

Water after being treated is stored in a 3.5 million litre storage tank at Westbank before being pumped to Cameron’s Hill reservoirs.

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## Treatment

After the water is pumped from the Brisbane River it flows via a flash mixer where various chemicals including Alum and Caustic Soda are added.

This begins the process for treating the high turbidity waters which occur 90 percent of the time at Mt.Crosby**.**

**Turbidity refers to the level of suspended material such as dirt, clay or other particles that are in the water when it arrives.**

Water enters with a PH level of between 7.7-8.2. This water has the alum added via the flash mixer. Caustic Soda is sometimes required to lower the PH to 6.8-7.2 where it causes **flocculation** in the water to occur. If the PH is not right the chemicals will not react in the appropriate way.

**Flocculation is a process in water treatment where a chemical is added that causes the fine particles in water to bind together.**

Once many particles are bound together, they become heavy enough to sink to the bottom. The water goes into the two large sedimentation basins that resemble swimming pools.. These pools hold 6 .5 million litres each and are 4.5 metres deep. Here the heavy particles that have sunk to the bottom are vacuumed out regularly and travel to a waste sludge pool.

These two **settling sedimentation basins ( pictured)** have pre-treated the excessively turbid raw water

Westbank Sedimentation Basins and Filtration Building, Mt. Crosby

The Westbank Treatment Plant uses the **Dissolved Air Filtration** (DAF) process next.

As **chemically flocculated water** enters the **Filtration chambers**, a pressurized stream of water saturated with air is injected, causing a large formation of very fine bubbles to rise up from the floor. These bubbles or oxygen molecules become attached to floc particles and float them to the surface. The air-floc particles accumulate to form a floating **sludge** blanket that is removed at regular intervals. Clarified water is then passed through filters to remove any remaining floc.

The accumulated sludge that has been collected is processed via a centrifuge that removes the heavy particles and returns the water to the lagoon where the water is once again sent on the process of treatment.

The waste sludge is removed and used as landfill .It has been suggested that this sludge could be used for the making of bricks.

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The large chemical silos contain the necessary chemicals for the treatment processes. Each silo holds 340 000 litres of chemicals and the lime silo holds 78 tonnes of lime that is mixed with the water as it flows to storage and reservoir.

As a result of the filtration process, the water appears as clean as it does from our taps at home.This is not the case though It now has to undergo ph correction and disinfection.

**Chlorine** is added to disinfect the water and **lime** added to correct the PH for human consumption and assure that it is not too acidic.

It is then pumped to reservoirs at Cameron's Hill .Fluoride is also added at Holt's Hill as a protective dental health measure as mandated by the Queensland Governments $35 million program to provide fluoride to Queensland.

As the water finally leaves Cameron's Hill Reservoir, **chlorine and ammonia** are added to form chloramine, a longlasting disinfectant, which ensures that any harmful micro-organisms are destroyed. Local councils also often add chlorine to maintain disinfection of the water supply as it travels along many kilometres of pipelines to our homes.

# Clean treated water

Westbank treatment plant has a capacity of **250 million litres** per day. This site has room for further expansion and provision has been made for the addition of a further three stages (each 250 million litres per day) if and when required.

For most of the year, treated water gravitates to Brisbane via trunk mains. In hot, dry periods, if the gravity system is not able to keep up with the added demand for water, one or two booster pumps can be turned on to force extra water down the mains to Brisbane.Together these pumps have the capacity to almost double the flow rate of water in the mains if required.

After the water is collected from catchment and stored in the dams of the SEQ Water Grid ,it is treated and is passed onto a number of providers who are responsible for the supply of treated water to homes in South East Queensland.

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# Did You Know !

**Water treated at Seqwater water treatment plants is treated to Australian drinking water Guidelines.**

**The Westbank treatment plant can treat 250 megalitres of water per day**

**Under normal circumstances it takes about 1 day to treat water from intake until storage for supply to consumers.**

**In peak period Eastbank and Westbank treatment plants combined can supply 1000 megalitres per day.**

**Wivenhoe Dam holds 1, 165 000 megalitres.**

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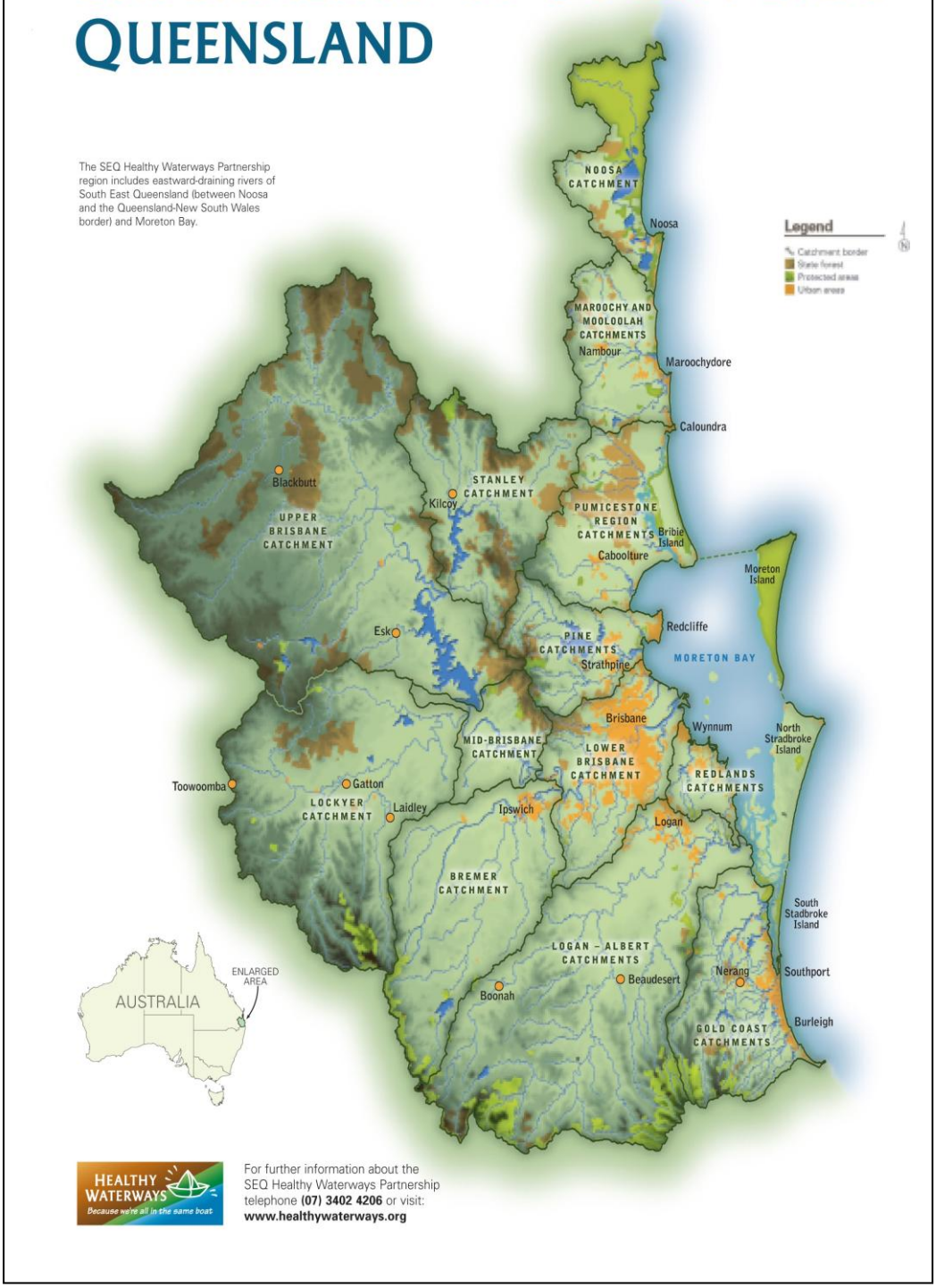
## CATCHMENTS OF SOUTH EAST QUEENSLAND

The SEQ Healthy Waterways Partnership region includes eastward-draining rivers of South East Queensland (between Noosa and the Queensland-New South Wales border) and Moreton Bay.

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Because we're all in the same boat

For further information about the SEQ Healthy Waterways Partnership telephone **(07) 3402 4206** or visit:
**www.healthywaterways.org**

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