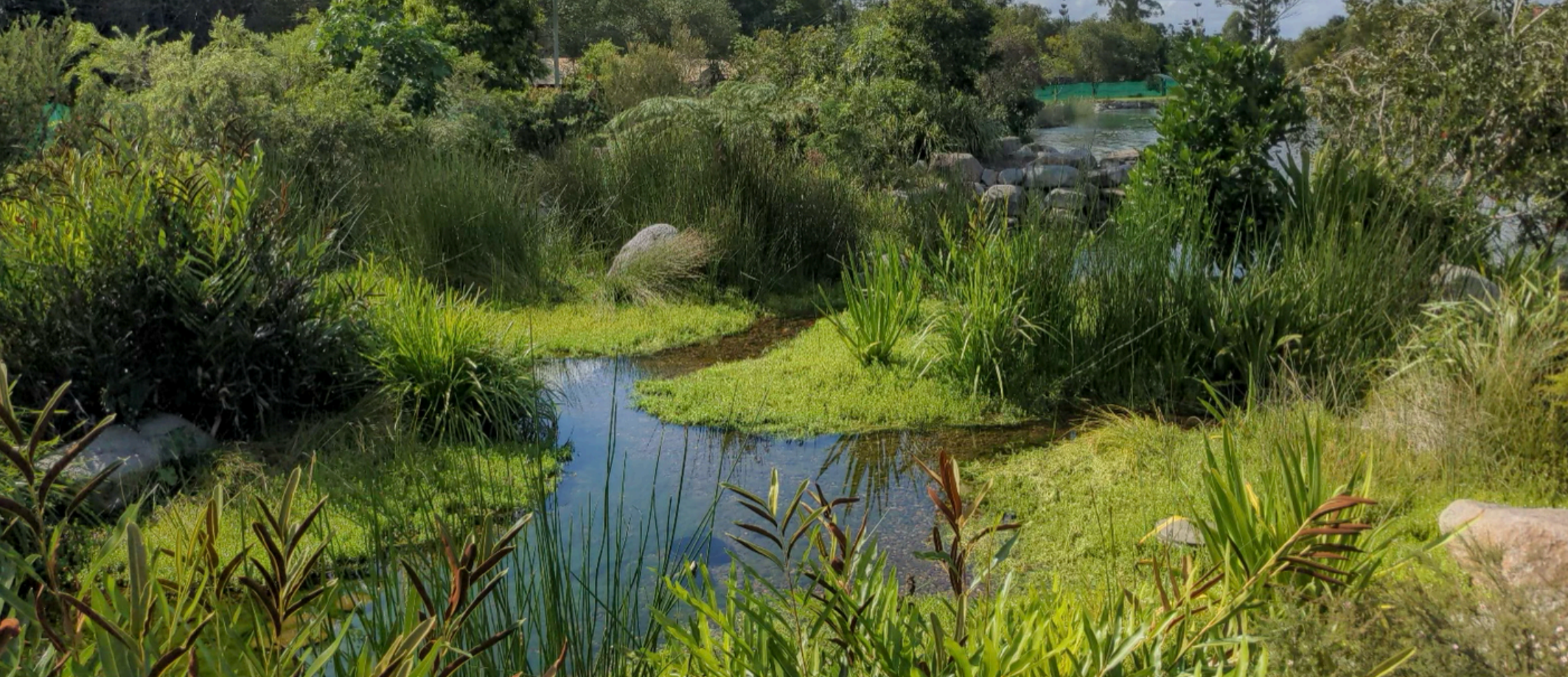
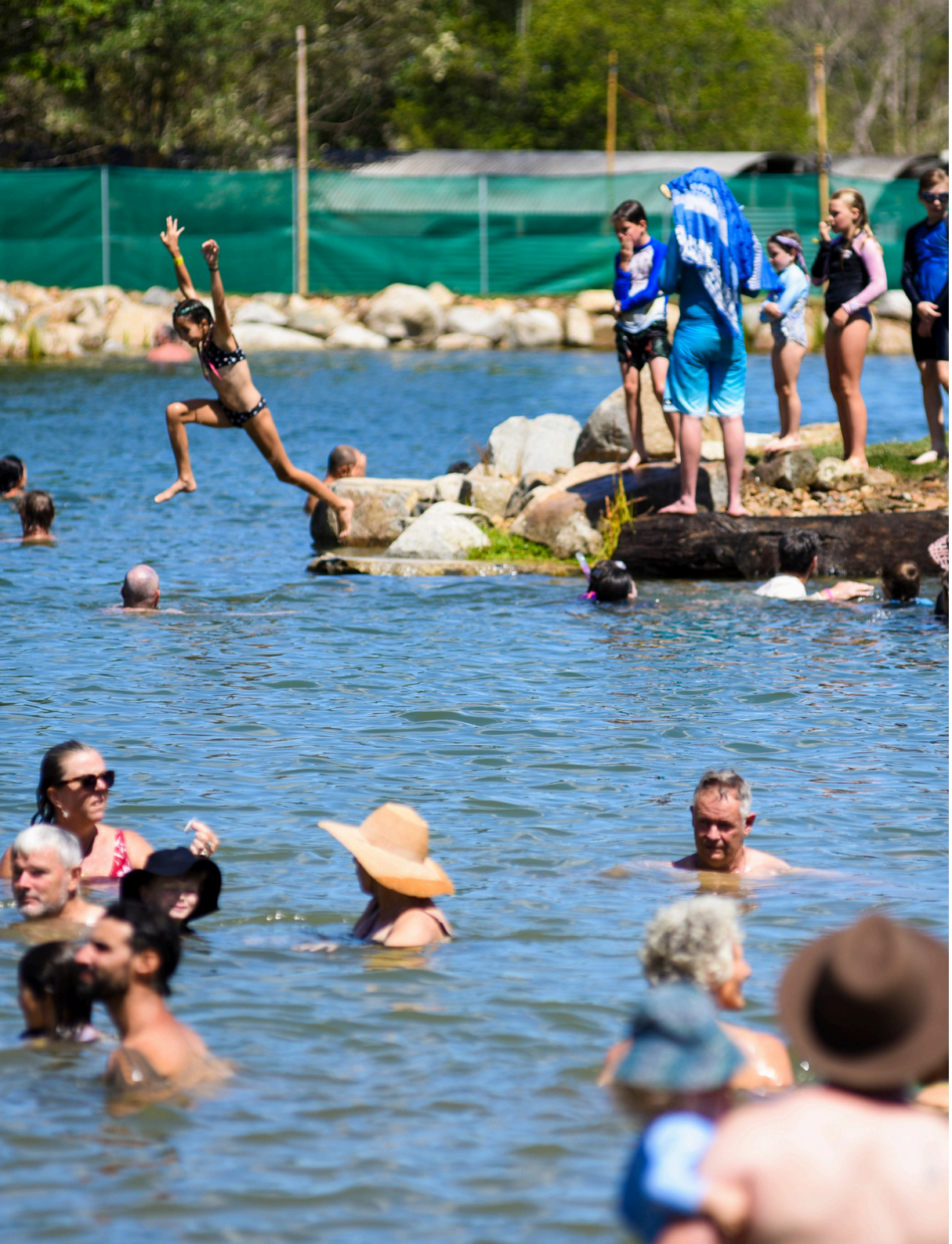


AQUASCAPE
AUSTRALIA

Aquascape Wetland Filtration



Overview

A constructed up-flow wetland filter is a biological filter that uses beneficial micro-organisms to remove nutrients, sediment and pathogens from water.

Large amounts of pebbles in the constructed wetland filter serve as surface area for bacteria to colonise. As oxygen-rich water is pumped through the pebbles, bacteria and micro-organisms process the nutrients in the water. Once the water reaches the top layer of the wetland filter, it flows back into the pond via a waterfall or turbulent return, re-oxygenating the water.

Water plants thrive in the environment created by the filter, creating habitat for birds, fish, frogs and other animals.

Why Choose an Aquascape Wetland Filter?

Aquascape wetland filters create a natural biological system that produce exceptional water quality. Excellent results have been found over 25 years of trials, development and thousands of real-world projects. It is a proven system, constructed with strong, durable components. Clear water and fast recovery from turbid inflows are the norm. The system is easily maintained, sustainable, and beautiful.

There is no biological filter that outperforms an up-flow constructed wetland. Biological filters that rely solely on plants require a much greater footprint in comparison to an upflow wetland filter. Down-flow biological filters block up and fail over time. Chemical systems that sterilise water work against nature, and do not address the cause of water quality issues. They only hide the problem and do so unsustainably.

Aquascape wetland filters are flexible and scalable. They can be constructed to suit small ponds and large lakes.

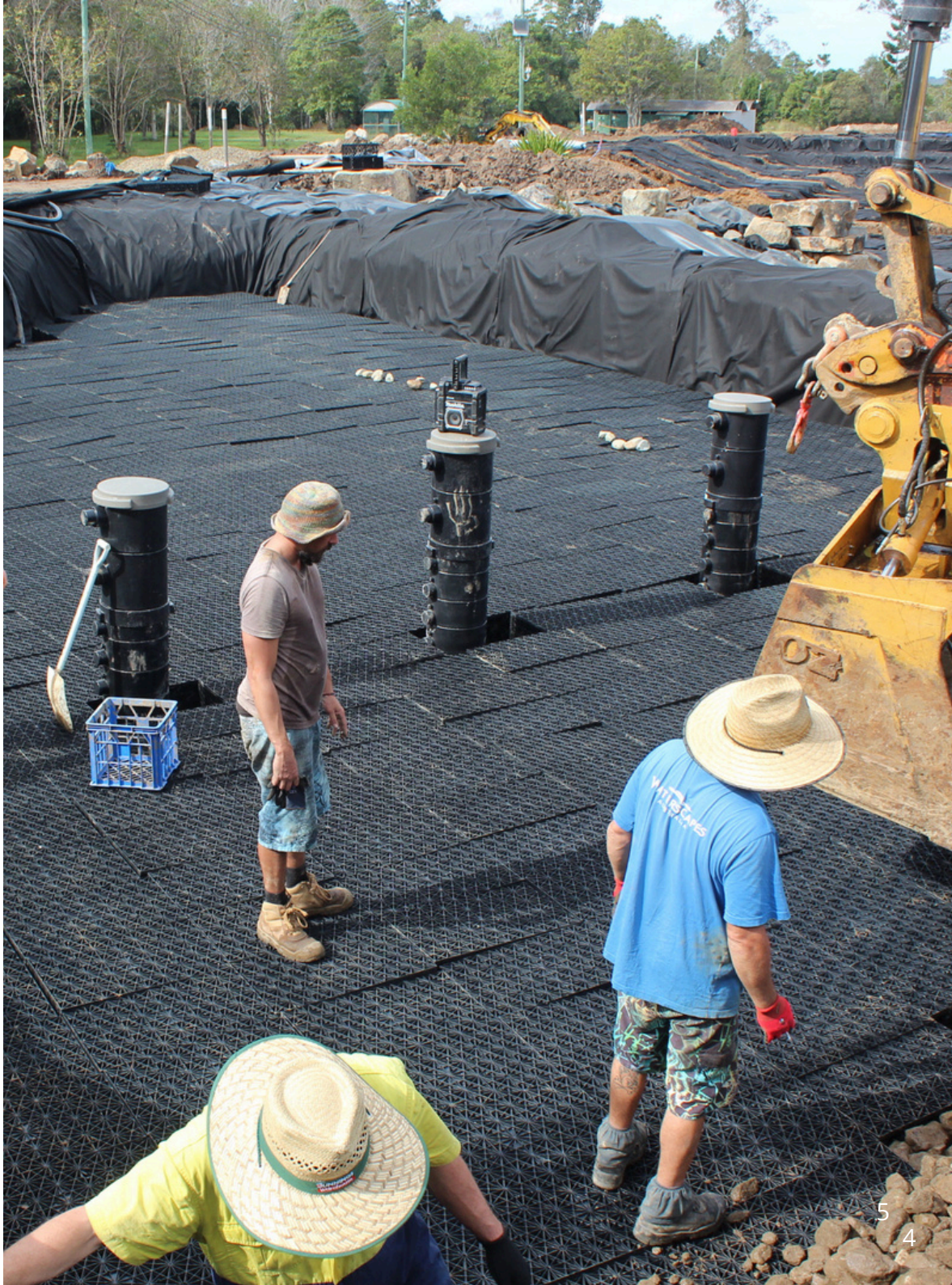
What Is an Aquascape Up-flow Wetland Filter?

It is an area of your pond or water feature where plants and beneficial microorganisms work in conjunction to remove nutrients and fine sediments from the water.

Water is pumped into the base of the wetland from the skimmer or intake bay of the pond and into the bottom of the wetland through the Centipede module, where it disperses and slows the water velocity. The design allows the water to move slowly enough at this point that some sediment will fall out of suspension and collect in the bottom of the Centipede Module. From here it can be removed through the cleaning process.

Once the water has dispersed and slowed down within the Centipede module, it flows up into the void created by the AquaBlox. The water spreads out evenly across the entire floor of the wetland, slowing the flow of water again and allowing for further sedimentation. This process prevents the channelling effect created if using just a pipe with holes, where water passes through channels in the pebbles, bypassing most of the available surface area and reducing the efficiency of the filter.

Water then moves slowly and evenly through the gradients of pebble layered on top of the AquaBlox. Each layer is 20cm deep, with the first layer being 80-150mm pebbles, followed by 40-80mm pebbles and finally a layer of 10-20mm pebble on top. The larger pebbles prevent the smaller pebbles above from passing through the gaps and accumulating within the AquaBlox.



What Is an Aquascape Up-flow Wetland Filter?

Water takes up to 15 minutes to reach the wetland's surface. This gives the microorganisms, that have colonised the pebble surfaces and plant roots, time to collect and digest the fine particles and nutrients suspended in the water. This is the essence of biological filtration.

Extreme situations or specific design requirements may call for more pebble depth, but the above formula works well in most applications. Routine additions of Beneficial Bacteria are also added to the system to ensure optimal populations to deliver the desired water quality results. Scoria and sharp gravel are not recommended as a substitute for pebbles, as they will compact and lock in tight together, allowing sediment to get trapped. They can also stop the water flowing freely. Rounded river pebbles promote laminar flow and good contact with the beneficial bacteria colonies that grow on the pebble surface.

The wetland filter should be flowing down to the pond for optimal efficiency. The wetland must sit a little higher to allow for the oxygen-depleted water from the filter to flow back into the pond in the form of a waterfall or swift-moving stream. This allows the water to re-oxygenate as it enters the pond.

Wetland filtration sizing

The sizing depends on the use of the pond or lake. A fish pond can have a wetland filter equal to 10% of the surface area of the pond. Bio Pool/Recreation Ponds used for swimming are recommended to have a minimum 25%. For example, a pond that covers 100m^2 will have a wetland filter that covers 10m^2, if it is for fish, and one that covers 25m^2 if it's for swimming. The pump size will be determined by the size of the wetland filter.

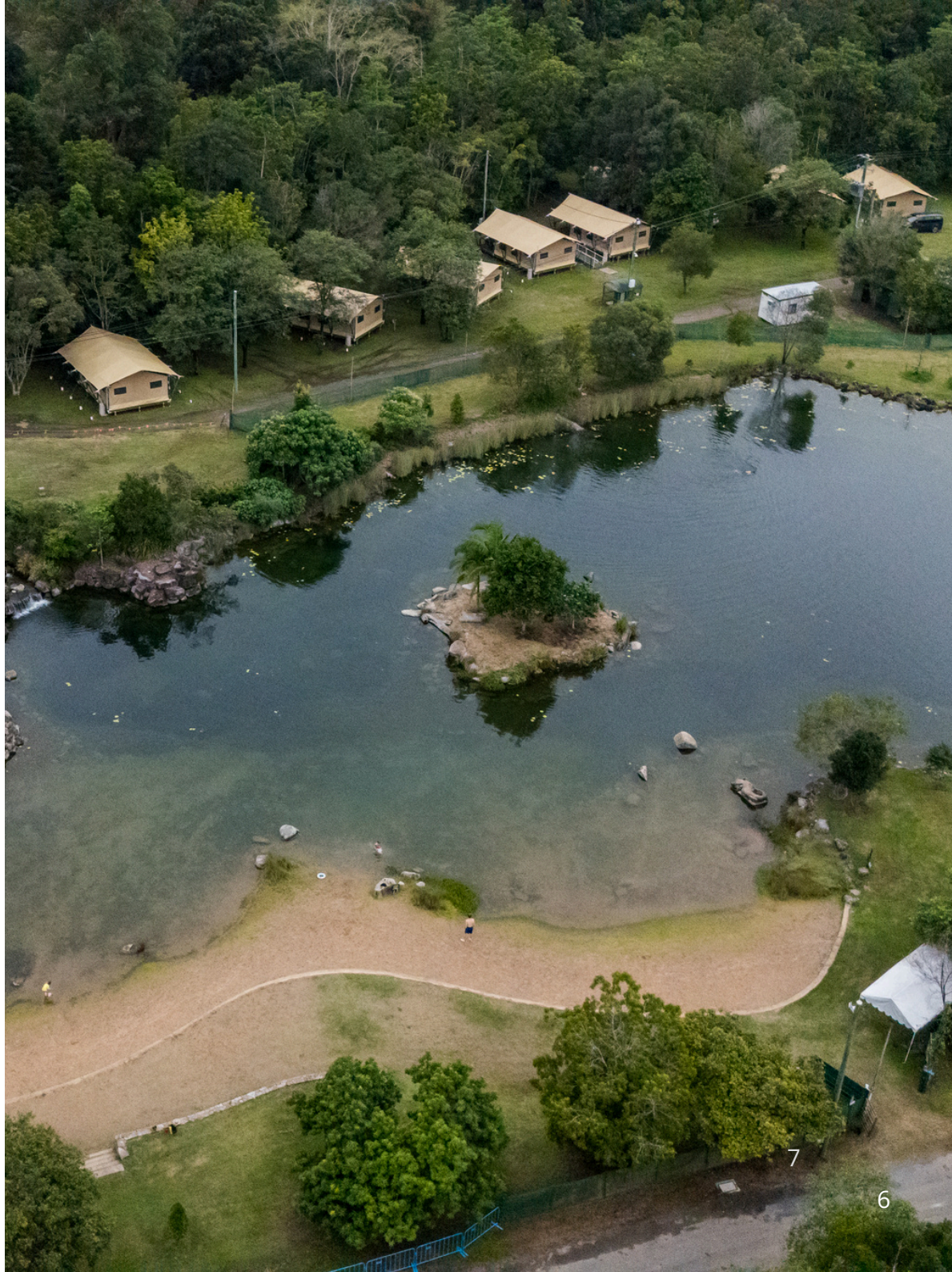
For large systems, we recommend constructing several wetland filters instead of a single large wetland filter. This is so one wetland can be cleaned out, while the other wetlands continue to operate.

Conclusion

A constructed wetland is the perfect biological filter. Each of the Aquascape product elements play a key role in the success of a working wetland. Without any one of these components the system would not work as designed.

The bottom line is that constructed wetlands work, and they make any pond look natural and beautiful. You can even grow edible plants in them much the same way as in an aquaponic system.

With today's focus on sustainable landscape solutions, wetland filtration is the obvious choice for filtering every pond.



AQUASCAPE
AUSTRALIA

As always, Aquascape Australia and our network of Certified Aquascape Contractors are available for any support or advice you may need.

21 Progress Place Yandina QLD 4561
PH: 07 5446 7963
Email: office@aquascapesupplies.com.au
www.aquascapesupplies.com.au