◀ on water's ability to transport them," he said. "Water that can't dissolve and transport them is like a truck with no wheels."

Grander-treated water is able to maintain relatively high levels of oxygen, even in polluted water. Aerobic processes are up to 30% more efficient at removing solids, and produce gases with fewer odours. Biological and biochemical reactions are also more efficient; enhancing natural bacteria, reducing the use of fertiliser, and reducing nitrate pollution of waterways.

On Palm Meadows, treated sewage effluent is drawn from the Merrimac sewerage plant, two kilometres from the club's southern boundary. On arrival, the effluent passes through a trap, filled with straw-based material, into a seven-megalitre pond. At this stage the effluent is pumped through in batches of two megalitres at a time.

For the past eight years, this pond has been inoculated with selected microbes; the use of which has been halved since the Grander treatment system was introduced.

The significant factor here is that this is a one-pond system. Effluent is pumped out of the pond, through the Grander treatment plant, and returned to the same pond.

Mr Brown, who heads up Jensen's golf division, says that 48 hours after adding two megalitres of treated effluent, the pond is clear again. While multi-pond systems are more generally used, this result in a one-pond system indicates that the body of already-treated water is contributing to the treatment of the new intake of effluent.

Both scientific reports and visual inspection confirm that the pond water is clear, odourless and virtually of drinkable quality.

Intake effluent from Merrimac sewerage plant enters Palm Meadows irrigation pond through a trap filled with straw.

"Since the GWT system was installed, this water is used to irrigate landscaped grounds around the clubhouse itself," Mr Brown said. "We now receive no complaints from neighbouring communities about odours, and the environment has benefited from reduced run-off pollution."

Another benefit can be seen in the aftermath of heavy rains. Palm Meadows is on a floodplain and periodically the course and irrigation pond are inundated by dirty brown water.

"Fourteen days after the last flood level dropped, the treated pond was clear again," Mr Brown said.

Mr Brown's sustainable management system balances the soil nutritionally and biologically. He then uses little or no insecticides, nematicides or fungicides, and progressively reduces herbicide use. Once implemented, the system eliminates coring greens and thatching. Run-off is reduced, greens renovation time has been minimised, and input costs slashed. This has been achieved without in any way reducing the fine condition of the Palm Meadows course and its greens.

Palm Meadows, now in its 16th year of operation, was closed for renovations in November and December last year due to management concerns with weed contamination. All greens and tees tops were replaced with new turf. Tees were stripped and turfed with Legend Bermuda Grass and Penncross bentgrass was replaced with Tifgreen (328). Jensen International took over horticultural maintenance management of the course at this time with Mr Brown as golf course consultant and Jason Batterham as superintendent.

The biodynamic plant/soil management that Mr Brown had previously proved so successful was re-introduced, and Jensen retains Burbank Resources for analytical data and golf course related management, Envirotest Laboratories for soil and irrigation water biology monitoring and Grander Water Technology Australia for effluent treatment.

Course superintendent, Jason Batterham, said there were other, less obvious benefits to the system.

"When we cut pipes, we find no slime or build-up, filters are much cleaner and water quality is just incredible. Grass is getting the full benefit from both the water and from our management, which involves leaving the clippings. After 12 hard frosts this year, we are still mowing, whereas normally grass would be dormant."

Looking to the future, Mr Slack said recycled water was a rich source of plant nutrition that simply needed to be unlocked. ●