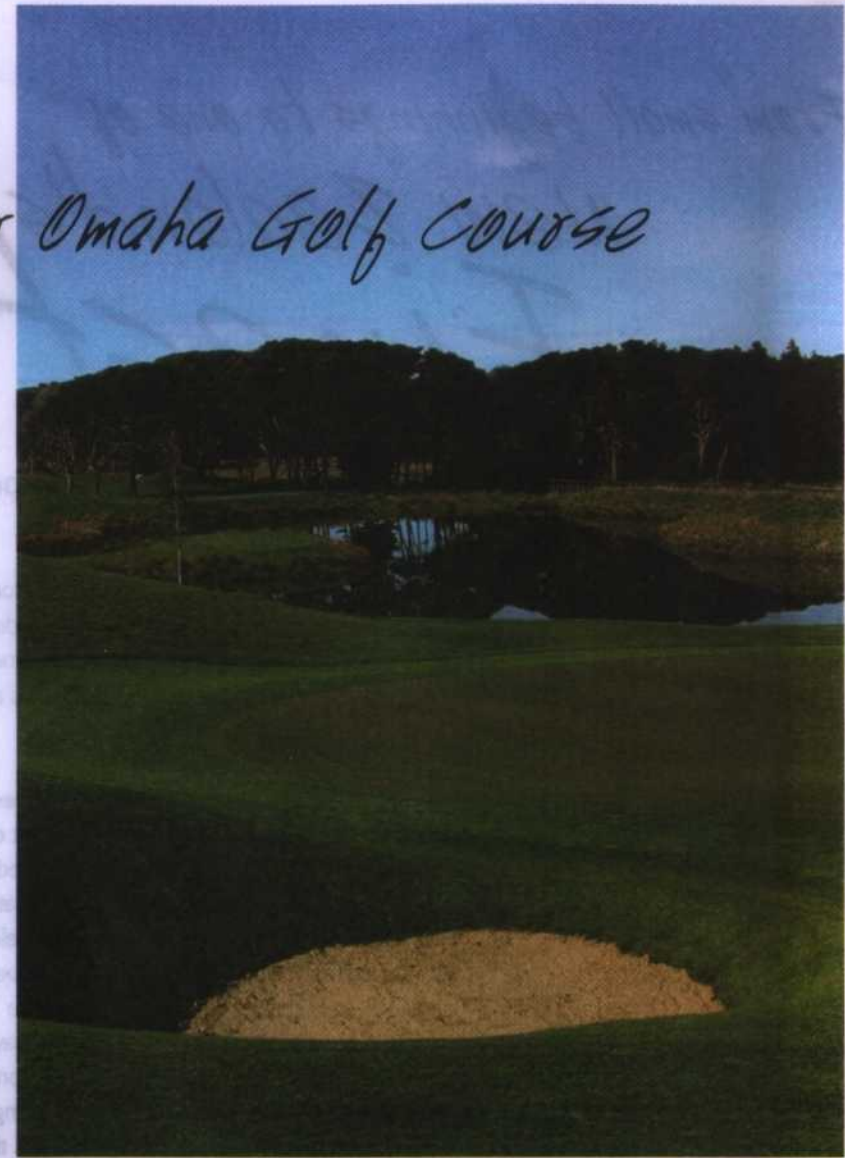


# World First for Omaha Golf Course

The rich green swathes of the new extension of Omaha Golf Course are visual proof of high technology at its best, enabling lush irrigated grass to survive all year round despite being bordered on two sides by ocean and estuary and built on a combination of sand dunes and wetlands.

It is a world first, and an international success story for the three main players - local drainlayer Ivor Jones, the international engineering company, URS, and environmental engineers Terraviva. Recycled water from Omaha's wastewater treatment plant is drip-fed through 200 kilometres of finger-thick piping buried only a few centimetres below the surface of the course's fairways. Although of an extremely high standard the water never reaches the surface - the deeper aquifer fresh water is used for above-ground irrigation of the tees and greens.

Delivery of the water is all computer-controlled. The drip system can be flushed clean at the touch of a button - the water being pumped back across the causeway to the treatment plant in Jones Road for further treatment before returning to the golf course. While low maintenance was a prerequisite for the project, buried sophisticated computer and engineering points are all logged by GPS and any component of the irrigation system under the five hectares of golf course can be pinpointed accurately within the size of a golf ball - before any future digging may start.




**Moisture Sensors 'Turn on the Tap'** Below the fairways of the new Omaha Golf Course extension are 20 Sentek soil moisture sensors which monitor water irrigation flows to ensure an optimum level for grass growth. Golfers walking the fairways are quite unaware of the technology beneath their feet, monitoring the flow of the recycled water from the nearby Jones Road wastewater treatment plant. The soil moisture sensors monitor the area irrigated by more than 200 kilometres of wasteflow pipe which was ploughed into the ground at the Jones Road site and on the golf course fairways. The pipes have thousands of micro-outlets to ensure the water is distributed evenly and in minute volumes.



# URS New Zealand

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## Creating lush fairways

The 200 kilometres of subsurface drip irrigation of wastewater under the fairway of the new Omaha Golf Course is a world first on this scale, according to its designer Peter Gearing, of URS New Zealand. An environmental engineer and recognised expert in subsurface drip irrigation technology, Peter says the system has been used on parts of golf courses before but never to this extent.

The Omaha project was unique he says. Innovative solutions were required to deal with the complexities presented by the fact the location was a golf course.

"It was a fascinating project to be involved in," he says. "We have achieved a system that is tailored specifically for Omaha and successfully combines a whole range of needs from aesthetics to environmental and community considerations." URS, which provides engineering and environmental services to people and projects in communities and businesses across New Zealand, Asia Pacific and in other parts of the world, provided the resource consent expertise and the design and management of the irrigation system on the productive peat soils at the Jones Road site, and now for the golf course extension.

## Good Wastewater

The exceptionally high quality of wastewater from the Omaha subdivision and its wastewater treatment system at Jones Road has always been put to good use irrigating forestry and horticulture. The 13-year-old plant was upgraded by the Auckland-based management consultants and environmental engineering company, Terraviva, to prepare for increased flows from the new Omaha Beach development.

During the resource consent hearings for the Omaha Beach development, an engineering consultant noted that the discharge from the Jones Road treatment plant had the rare distinction in New Zealand of being recycled for irrigation. With the newly upgraded treatment plant able to produce an even better quality of water, it was possible to use subsurface drip irrigation for the new nine-hole golf course extension with recycled water and nutrients to stimulate grass growth.