

Press release

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Aqua Services & Engineering installs two largest trickling filter sewage treatment plants in Namibia



Picture 1



Picture 2



Picture 3

Aqua Services & Engineering (ASE), the Namibian subsidiary of Veolia Water Technologies, has been sub-contracted to supply, install and commission mechanical and electrical works for two Greenfield sewage treatment plants (STP) in Helao Nafidi municipality, northern Namibia. The sewage treatment plants are designed to treat domestic sewage originating from the municipality's amalgamated towns of Oshikango and Ohangwena. Treated water will be re-used for various irrigation projects. On completion, the two plants will be the largest trickling filter sewage treatment plants built in Namibia to date.

Helao Nafidi, a municipality comprising five urban towns within a radius of ca 15 km and with a total population of approximately 45 000, required two sewage treatment plants to upgrade and replace their existing oxidation ponds, which have become too small to handle the increased load required to service the majority of their erven connected to the reticulation system. One plant is located at Ohangwena and the other at Oshikango, with respective plant capacities of 1 500 m³ and 3 000 m³ per day. The STP sites are approximately 10 kilometres apart from each other. Designed by local specialist consultants Aquarius Consult cc, and built by Nexus Civils, the plants incorporate proven technologies to achieve the required effluent standards.

“The domestic sewage from the two towns will be treated using biological primary and secondary treatment, combined with tertiary treatment to improve the final effluent water quality,” explains Alex Busch, General Manager, Projects, ASE. For aerobic treatment, trickling filter technology was chosen: after screening and grid removal, the raw sewage undergoes primary settling and anaerobic treatment before the overflow is treated in an aerobic process using new-generation trickling filter technology. The trickling filter tower is packed with plastic media that serves as host for carbonaceous material removers and nitrifying micro-organisms to grow on. The effluent is subsequently fed to a secondary clarifier and disinfected using gas chlorination. Finally, sand filtration is employed for polishing so the effluent can be re-used for gardening, sports fields and irrigation projects, thereby creating value for the surrounding community.

ASE designed, supplied and installed all mechanical components for the inlet works, rotating clarifier bridges, pumps, instrumentation, trickling filter media, gas chlorination equipment, sand filters and chemicals in the form of chlorine gas cylinders, most of which was imported from South Africa. The exception is the trickling filter media, which was imported from Germany. “All equipment from South Africa was road-freighted to Namibia,” says Busch, “while the trickling filter media was shipped to Walvis Bay Harbour, from where it was road freighted to site.” He adds that all electrical items and activities were, in turn, subcontracted to local Namibian electrical specialists, and include onsite electrical installation, supply and wiring of all motor control cabinet panels.

Most of the works for the project have already been completed, and the site is currently receiving the finishing touches before commissioning commences. This is expected to take place in the last quarter of 2017, and will be conducted in such a manner as to divert the current sewage inflow from the existing ponds and pass it through the new plants for proper treatment. The existing oxidation ponds will be drained and cleaned and the final ponds will be reused as irrigation ponds to store final effluent, before being pumped to various irrigation sites.

“The effluent from each plant will comply with the Namibian general standard for domestic wastewater, which the local communities can re-use for gardening purposes or for irrigation of selected produce. A ca 30 km ring-main system that provides treated effluent for reuse throughout the towns has been installed, which will ensure that users can connect to this supply easily and at minimum costs. The reclaimed water will provide them with a valuable additional supply of water, especially during dry spells,” Busch concludes.

Caption to picture 1: View from the inlet works at Oshikango Plant

Caption to picture 2: View from the inlet works at Ohangwena Plant

Caption to picture 3: Water tightness test being conducted on a clarifier

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