The WCG is setting the standard in sustainable water usage.

Recently the Western Cape Government revamped the building of DEA&DP, situated in the Cape Town CBD. This included the installation of an on-site Waste Water Treatment Plant.

Treated effluent is used for toilet flushing, saving more than 1 million litres of potable water per year!

The WCG is certainly setting a standard for others to follow!

MASKAM WATER

This case study shows how easy it is to become more water resilient without sacrificing any comfort.

Clarus Fusion Wastewater Treatment Plant

The Clarus Fusion is a factory-built activated sludge waste water treatment plant.

It follows the exact same treatment process as municipal activated sludge plants, including denitrification and phosphate reduction.

It is **NOT** a typical package plant.

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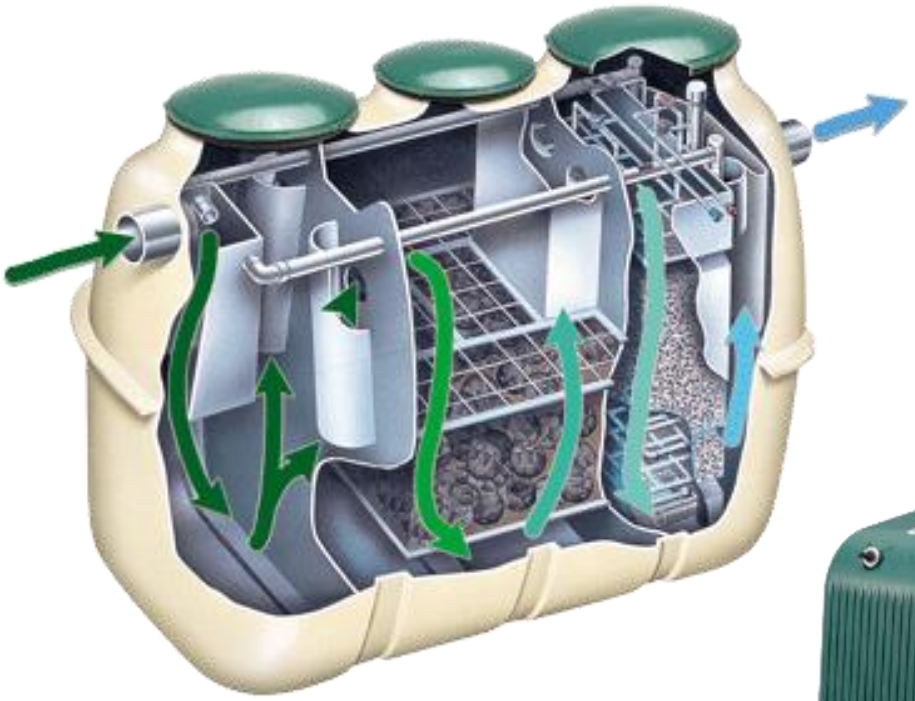
The Fusion System



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- Treat your sewage from as little as 60 watts
- Different models available, from 1.5 to 15 kl per day
- Parallel installations can cater for bigger communities
- Effluent is good for irrigation, grey water applications or discharge

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What differentiates the Fusion from other plants?

- ✓ Low power consumption – up to 90% less than most other plants
- ✓ Single tank construction
- ✓ Tank installed completely underground
- ✓ Low noise factor
- ✓ Easy installation
- ✓ Low maintenance
- ✓ No downtime during service / maintenance
- ✓ Alarm panel – self monitoring
- ✓ Full nitrification / de-nitrification cycle
- ✓ Effluent meets South African DWA General Limit
- ✓ Small Footprint
- ✓ Solar options available

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On-site Wastewater recycling in Cape Town CBD

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Close-up of building

Street view

Available space for installation

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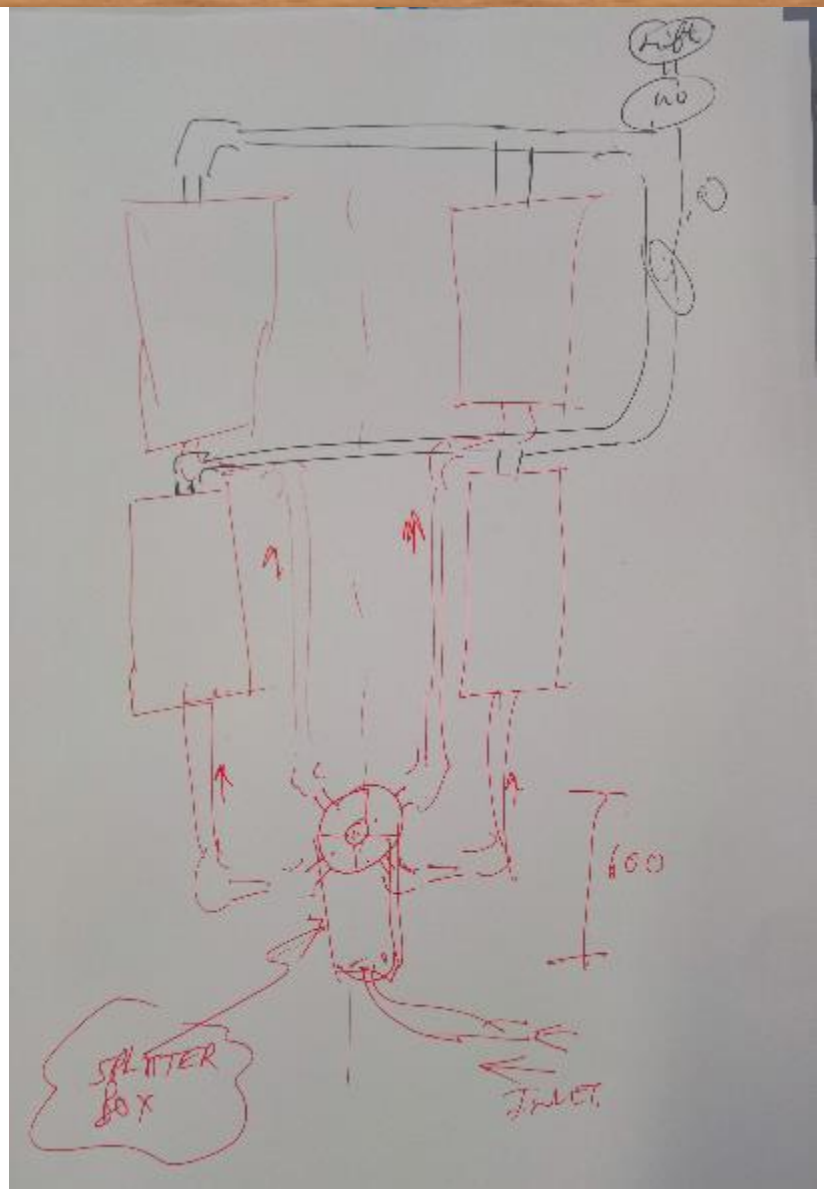
Planning

Due to limited access 4 x smaller plants had to be installed to cater for the total daily treatment capacity



Start of construction

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The only access was through this opening, during construction

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Placement of 4 x Clarus Fusion ZF800 WWTPs

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Nearing completion

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Final Grade

Electrical Panels and air pumps

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Access for servicing of Fusions

50% of waste water is treated on-site. This caters for the entire toilet flushing need while the excess waste water still goes to municipal sewer.

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Treated effluent used for toilet flusshing

This building is **saving one million litres of water per year** by treating waste water on site and re-using it for toilet flushing.

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Basic layout of system

1. When a toilet is flushed, the booster pump will start and deliver water from the tank to the toilet under pressure. A small amount of chlorine is dosed into the system, ensuring the water in the toilet is bacteria free.

2. As the tank level drops, a float switch in the tank will demand water from LS4. The pump will start and transfer water to the storage tank.

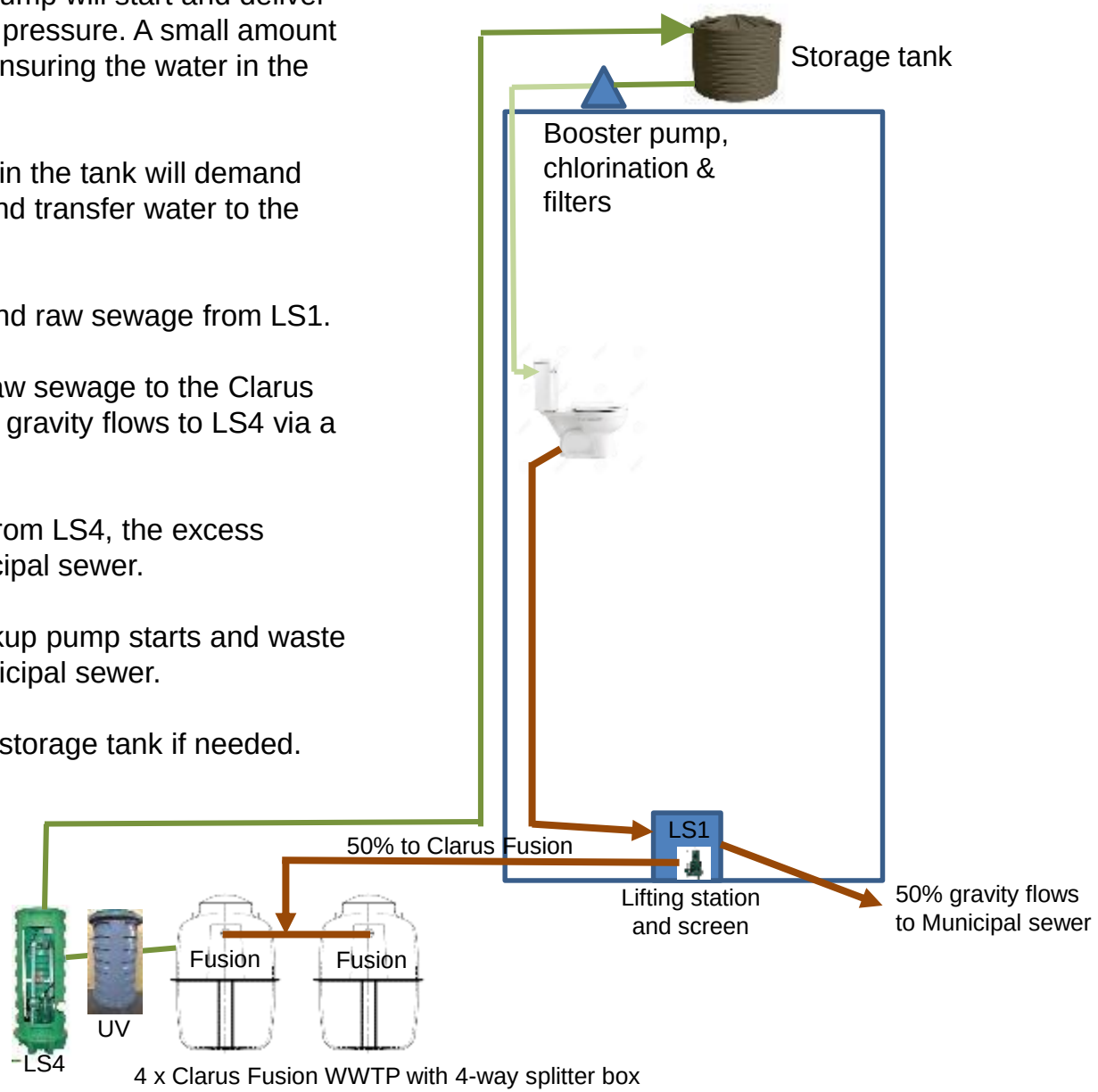
3. As the level in LS4 drops, it will demand raw sewage from LS1.

4. The pump at LS1 will start and feed raw sewage to the Clarus Fusion WWTP, where it is treated and gravity flows to LS4 via a UV for sterilization.

5. If LS1 is full and there is no demand from LS4, the excess sewage gravity overflows to the municipal sewer.

6. If there is a high level in LS4, the backup pump starts and waste the excess treated effluent to the municipal sewer.

7. There is a municipal backup to fill the storage tank if needed.



Do’s and Don’ts

Do:

- ✓ Service plant every 6 months & send service report to Maskam Water
- ✓ Replace UV lamp every year
- ✓ Replace Blower Diafragm & Air filter every four years
- ✓ Use septic tank friendly detergents & chemicals

Don’t:

- ✘ Use harmful chemicals, i.e. Bleaches, chlorines, anti-bacterial detergents & -soap. It will kill the bacteria in any biological plant
- ✘ Flush inorganic matter down the drain
- ✘ Flush paper hand towels or newspaper down the drain. These kinds of paper takes forever to degrade and may cause blockages in the sewer system
- ✘ Introduce petrol / oil / grease / engine cleaner into the system
- ✘ Flush paint / thinners down the sewer line
- ✘ Overload the system

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For your own good, and for that of the Fusion, do not use disinfectants or anti-bacterial detergents & sanitisers unless really necessary

The team looked at Staphylococcus epidermidis, a type of bacteria found on the skin of healthy people and is traditionally considered harmless. They previously found that in environments with a high concentration of disinfectant, such as intensive care units, this otherwise benign bacteria can become pathogenic and multidrug resistant.
When this happens, the drug resistant strain can potentially transfer 'resistance' genes to Staphylococcus aureus, which then transforms into 'superbug' MRSA.
Up until now, previous research has focussed largely on MRSA, with little attention paid to Staphylococcus epidermidis in this context. According to Dr. Hijazi, however, these results indicate that Staphylococcus epidermidis may also pose a potentially a significant risk to public health.
Professor Gould explains: "Our research shows that in environments with a high concentration of disinfectant, this previously harmless bacteria can develop resistance to treatments commonly used to treat infection. This is potentially a very significant public health issue and highlights the importance of investigating how these bugs can become resistant to disinfectants.'

This is an abstract from:
https://phys.org/news/2019-03-disinfectant-hospitals.html

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THANK YOU!
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