

Micro-Distributed-Catchment Model

A systemized solution to Stormwater Harvesting and Stormwater Management

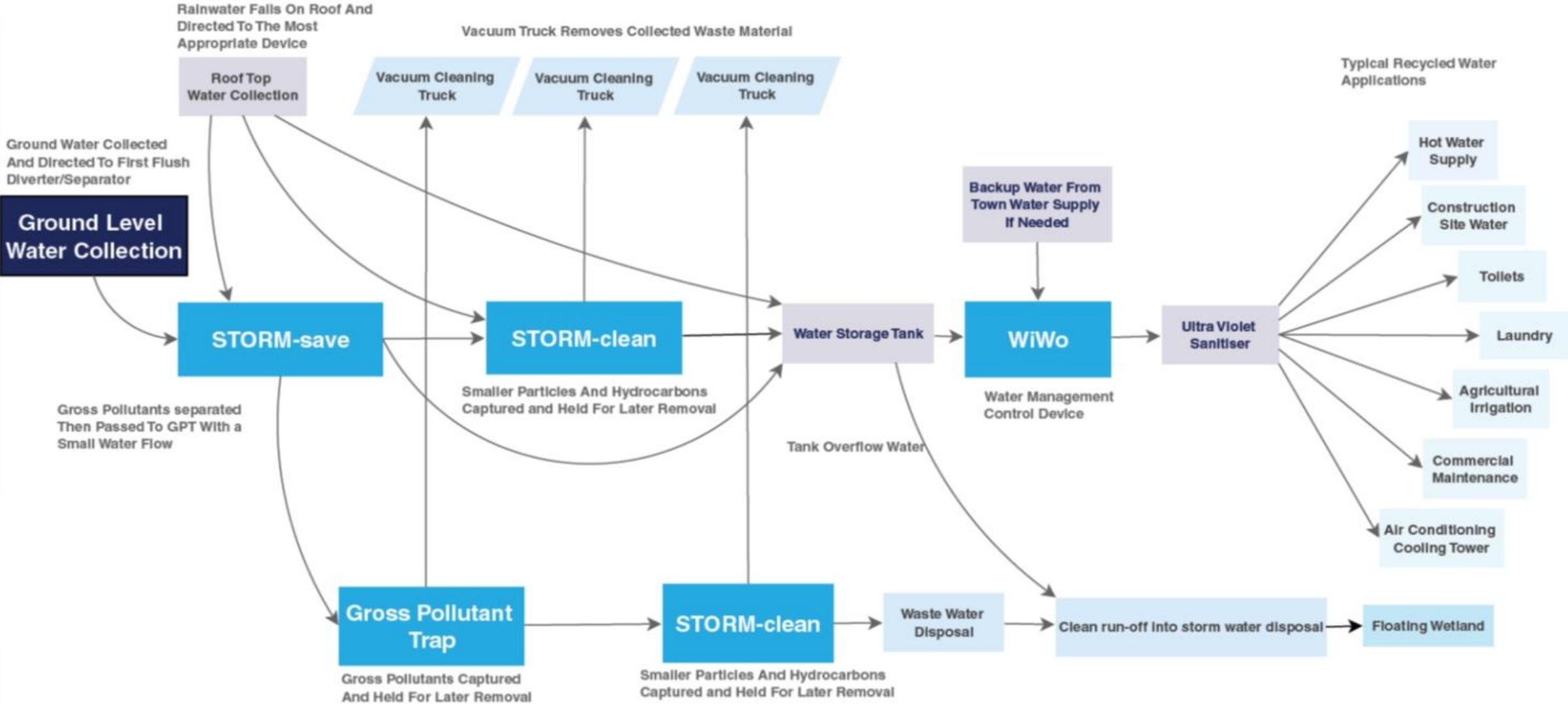
Harvesting – for essential water quality improvement

Overview

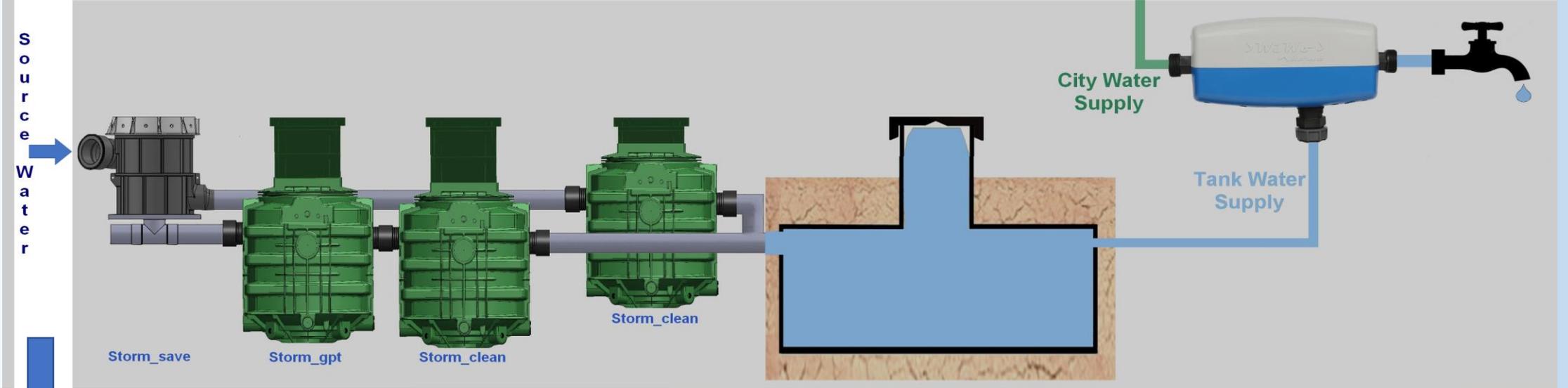
- Harvesting encapsulates a process for capturing and applying the essential resource of water and improving water quality outcomes to enhance and meet our environmental and human needs.
- Water is the ultimate solvent and transporter so once rainwater reaches the ground it begins to collect pollutants and debris as it flows towards the drainage network.
- These pollutants must be separated and removed from the surface flow before the water can be harvested as a resource or as protected environmental flows into sensitive living waterways.
- The OneWater innovation, the Micro Distributed Catchment Model (MDCM) for flow control and the four step treatment system of integrated product are engineered solutions designed to maximise harvesting of rainwater and stormwater in sync with environmental enhancement. Through the OneWater treatment train and maintenance approach, a high level of water quality outcomes protects the environment in support of nature and its biological and ecological process that define and control the water cycle upon which we rely.

Schematic Overview of System

One System Water Capture, Treatment, Storage, and Distribution System



System Components



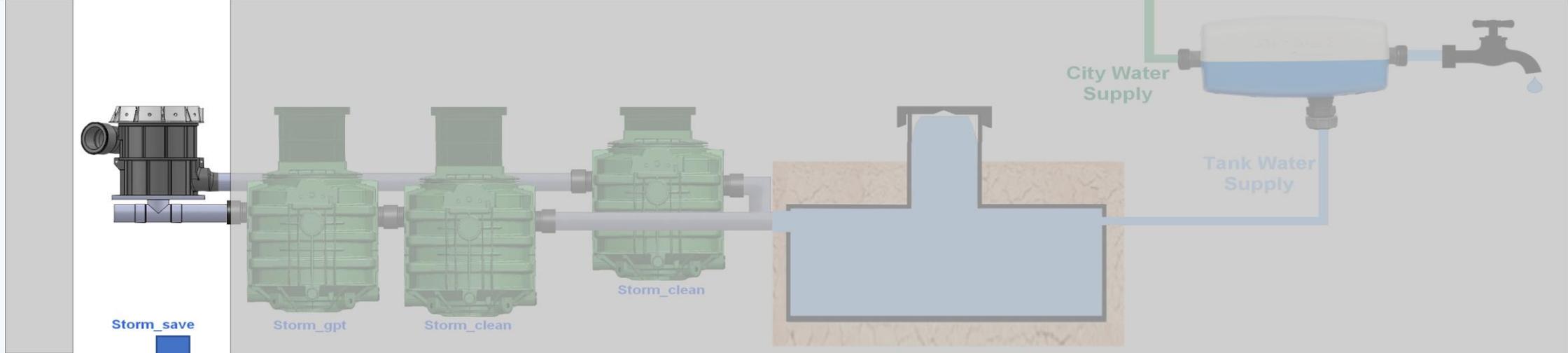
Water Sources



Suitable stormwater can be collected from a wide variety of sources.

These include commercial roof tops, domestic roof tops, surface water, and bio-swales etc.

The type of catchment will define the system components required to install an efficient system that will provide high quality harvested stormwater.



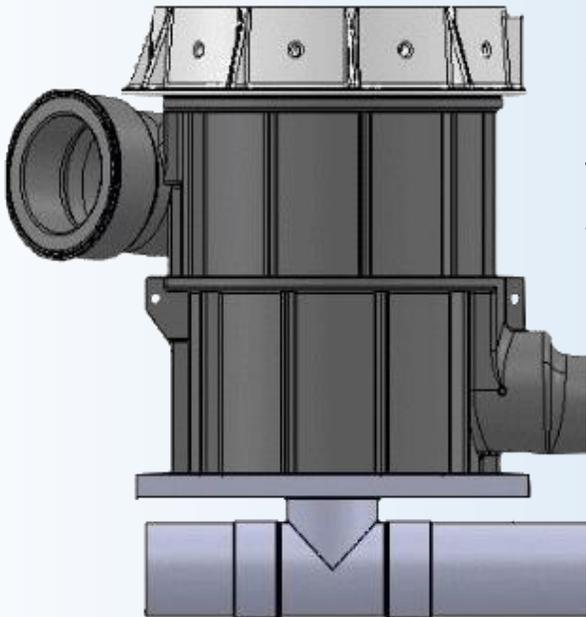
Initial Gross Pollutant Separation

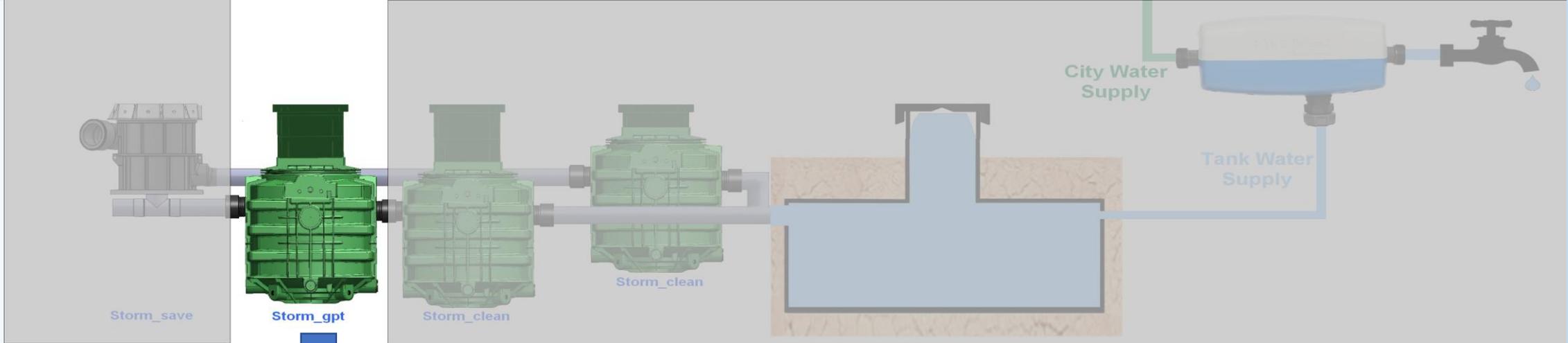
This primary stormwater quality improvement device (**SQID**) collects inflow water as a point-of-capture (POC) from variable catchment conditions and provides full flow separation at any scale. A **First Flush** device can be added, then if fitted substantially reduces the harvested stream contaminate load for more efficient finer filtration. The design concept uses a distributed network of devices relative to ARI specifications to manage the catchment inflows and reduce potential stormwater contaminate uptake.

The **harvesting channel** carries the protected water and sends it for further treatment to reduce any remaining particulate and soluble contaminants before retention. The lower **waste channel** drains the higher concentration contaminate load with lower volume flow towards the gross pollutant trap (**GPT**) for further separation.

Specifications

- Primary inlet DN300/DN225
- Primary outlet DN250/DN200
- Secondary outlet DN300/DN200
- 1,000 mm high x 850 mm diameter

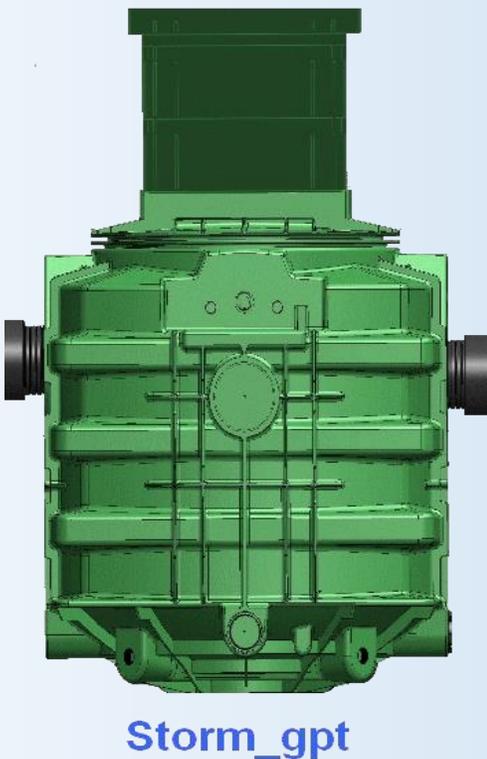




Gross Pollutant Capture

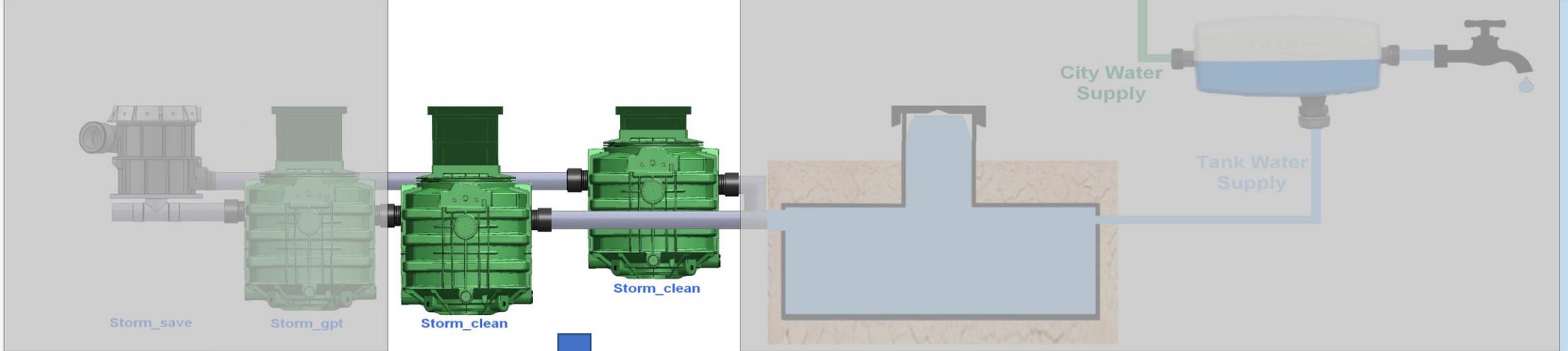
The gross pollutant trap (**GPT**) receives the contaminated outflow water from the waste outlet of the primary separator and captures the larger gross pollutants and contaminant particulate to hold them within the **GPT** for later removal and potential recycling. The **GPT** is manufactured from inert polyethylene which provides long service life devices and is easily cleaned using a vacuum removal process.

The filtered water can then be passed to the finer filter **STORM_clean** device where secondary treatment including for soluble contaminates which are ionized for process into particulate form can be captured.



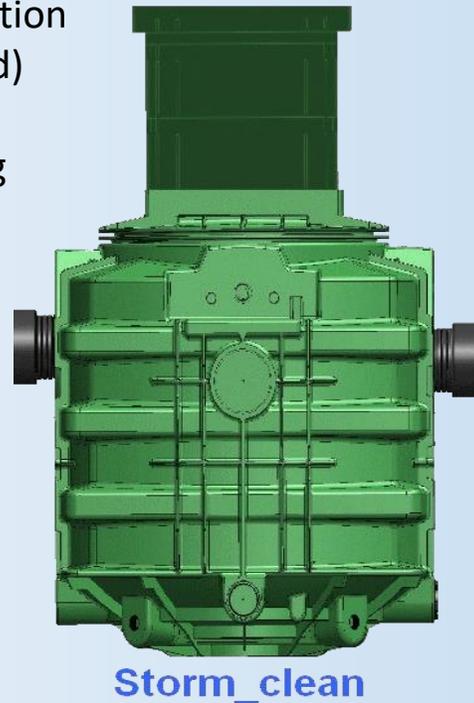
Specifications

- 6 K or 8 K Litre tank configuration (Multiple tanks can be installed in a network)
- Up to DN600 inlet & outlet - 600 x 900 mm access opening
- 2100 or 2500 mm deep - 2300 x 2300 L x W - Optional riser available



Specifications

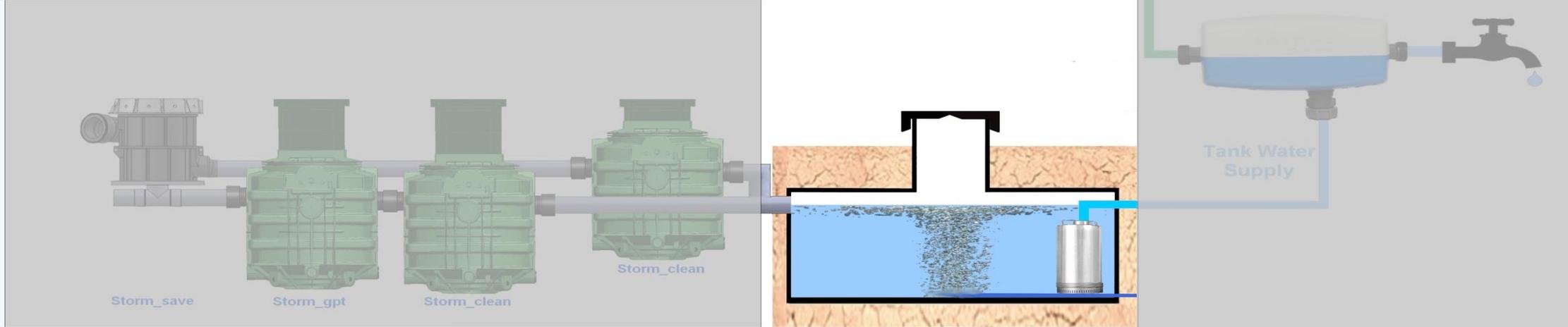
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Advanced Filtration STORM_clean Product

Water chemistry adjustments and bonded particulate provide secondary treatment from finer filtration that is conducted in the **STORM_clean** device. The **STORM_clean** accepts the pre-filtered outflow water from either the primary **STORM_save** online separator or the **GPT** and effectively reduces and allows removal of soluble and insoluble contaminants in the stormwater flow.

Once the water has passed through this systemised filtration process it is in a more suitable state to **support nature's biological processes** whilst in hydraulic residence in suitable storage that can also include wetlands or aquifers etc. This tertiary treatment process is also enhanced through infiltration, sorption material, aquatics and generally aerobic conditions for natural treatment.

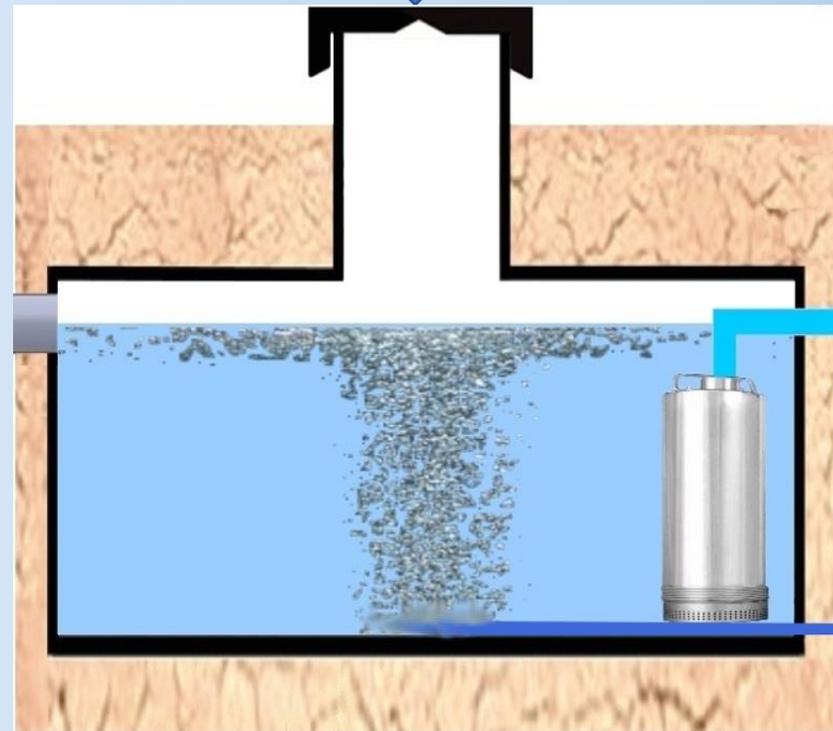


Harvesting – Tank Storage Product

A **harvested stormwater resource** can be retained as a healthy resource for long periods and well after storm events in a variety of large scale water containments that are designed relative to source water **availability** and **utilisation** needs.

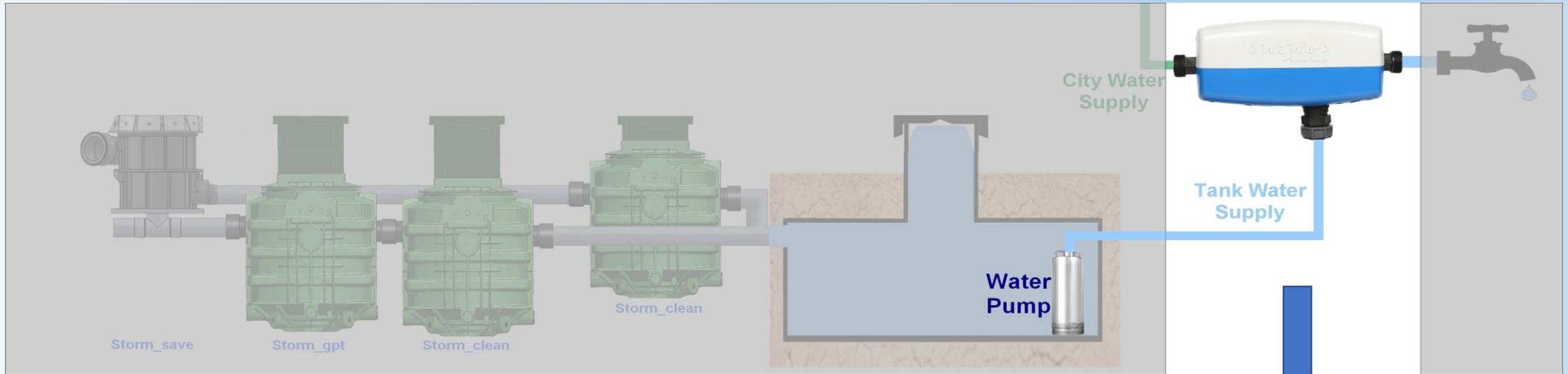
Stored water can be maintained at **healthy quality levels** by using managed aeration for biological support as needed.

Disinfection is recommended for utilization applying Ultraviolet light exposure during the delivery process to ensure that the water is **disinfected, naturally** before use.



Specifications

- Tank capacity 8 M³ modules
- Modules can be used from 100 M³ to any capacity as needed



Water Resource Management – Maintain Optimal Water Quality in Storage

Wiwo is a water source controller that manages distribution on-demand with natural μV disinfection applied to complete the holistic **OneWater** treatment process. **Wiwo** prioritises the harvested water source whilst also maintaining support for nature's biological process in the retained water resource in an aerobic state as automated management to ensure that stored water is maintained long-term and delivered on-demand at the best possible water quality.

When the stored water, generally used for non-potable application is depleted, **Wiwo** will seamlessly switch to mains town water to ensure continuous water supply to the application. When stored water is available again, **Wiwo** will switch back to the harvested water resource.



Specifications

- 25 mm throughlet flow
- 0.375 to 2.2 Kilowatt pump output
- 500 Watt μV output supply
- 500 Watt aeration output supply

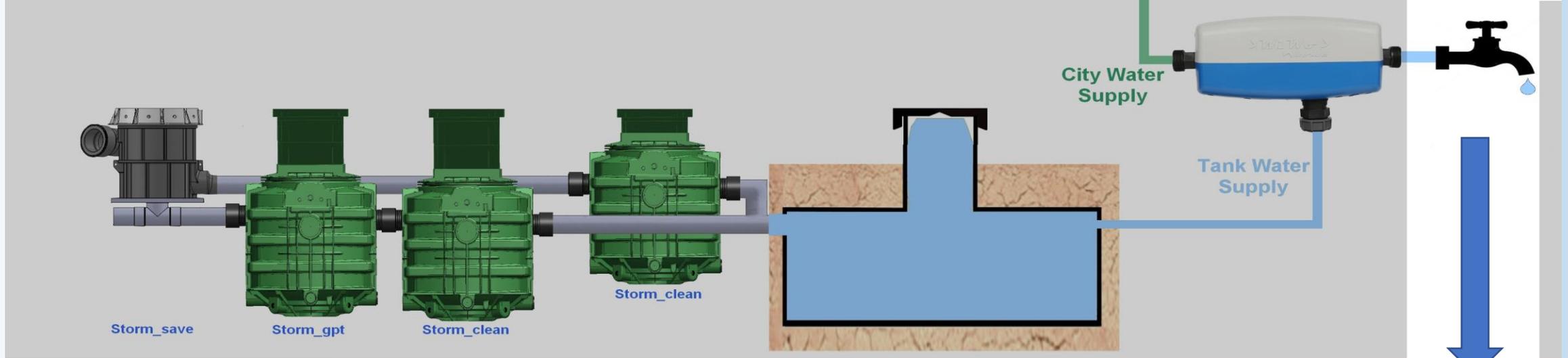
System Maintenance

System **maintenance** is crucial to improving water quality outcomes and supporting environmental protection of **natures process** in the **water cycle** from every stormwater event.

The **OneWater** systemised product solutions have built-in maintenance designs which is a safe and simple process with ease of access for vacuum truck extraction that follows each peak storm so the system is clear and reset for optimal performance when next needed.

Substantial **contaminate reductions** occur because of our engineering and scientific approach to treatment train requirements and speedy removal of trapped pollutants before subsequent storm events. **Water quality outcomes** are the primary consideration for stormwater management that also takes account of flood mitigation and having **an available water resource** to meet our needs for resilience to urban and population growth demands potentially causing climatic effects.





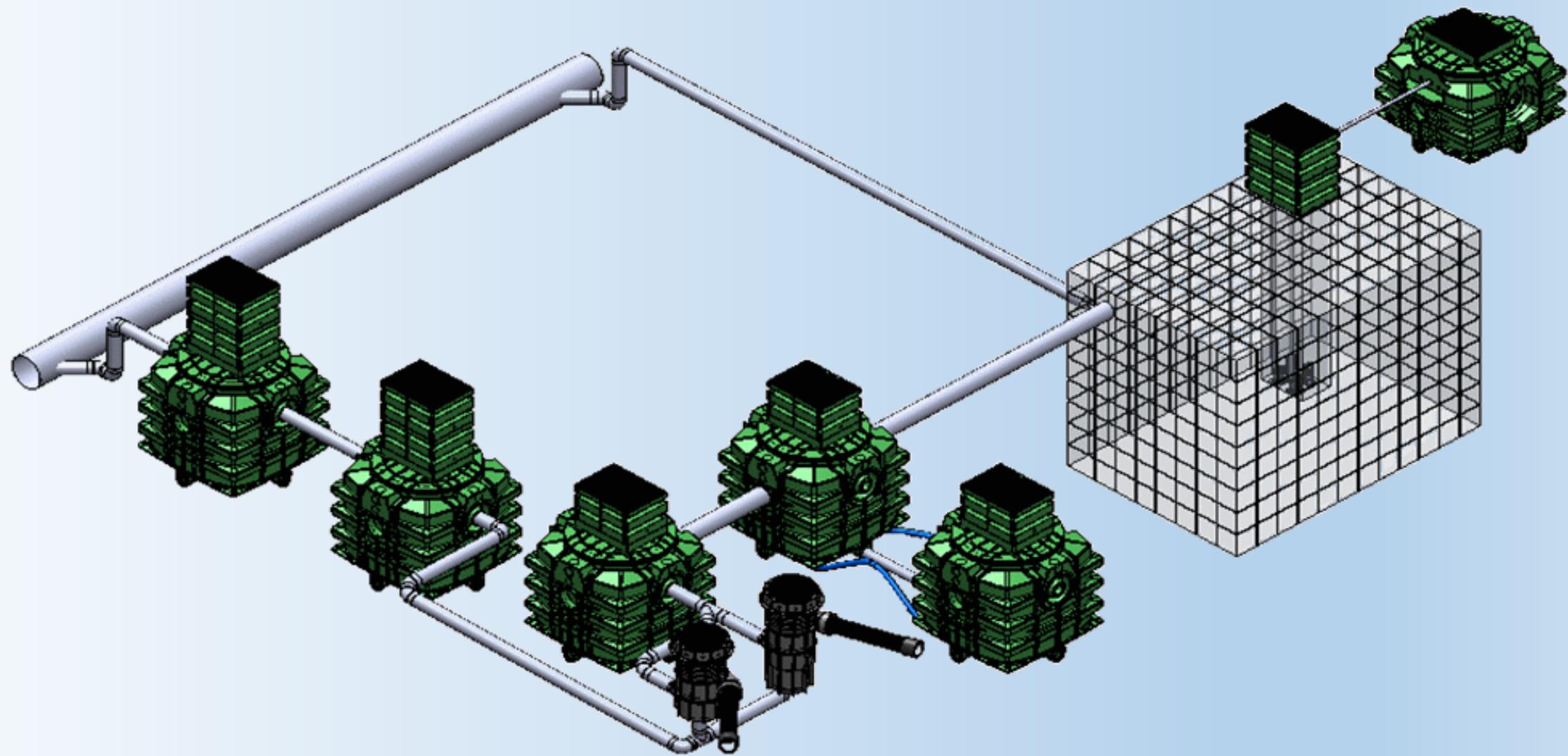
Applications for Harvested Water

Rainwater is our only source of potable water. Water represents much of our good health, food chain and lifestyle! Water is also our economic driver for industrial and agricultural production and productivity.

Harvested rainwater when systematically managed and treated in a low cost treatment train can be upgraded for augmented potable water supply that provides a huge economic benefit as savings from infrastructure, energy and resource costs.

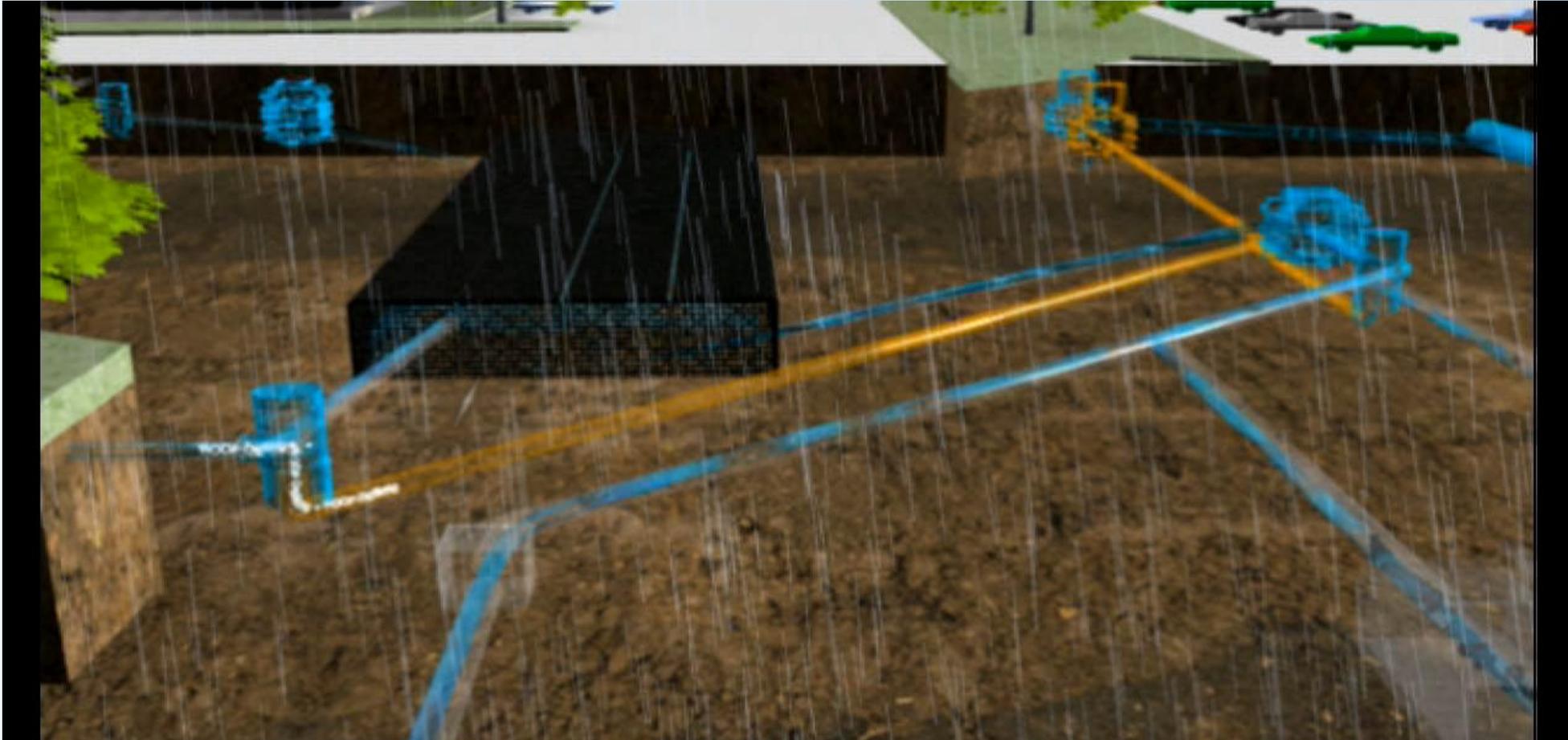
Harvested water can be used in a very broad range of applications mainly applied and conveniently so as a non-potable water source to conserve the high cost reticulated city mains supply and promote the cultural shift for water conservation strategies.

Utilizing this abundant and renewable source can extend the use and application of rainwater while protecting the environment and preserving our limited potable water supplies for future generation among other benefits.

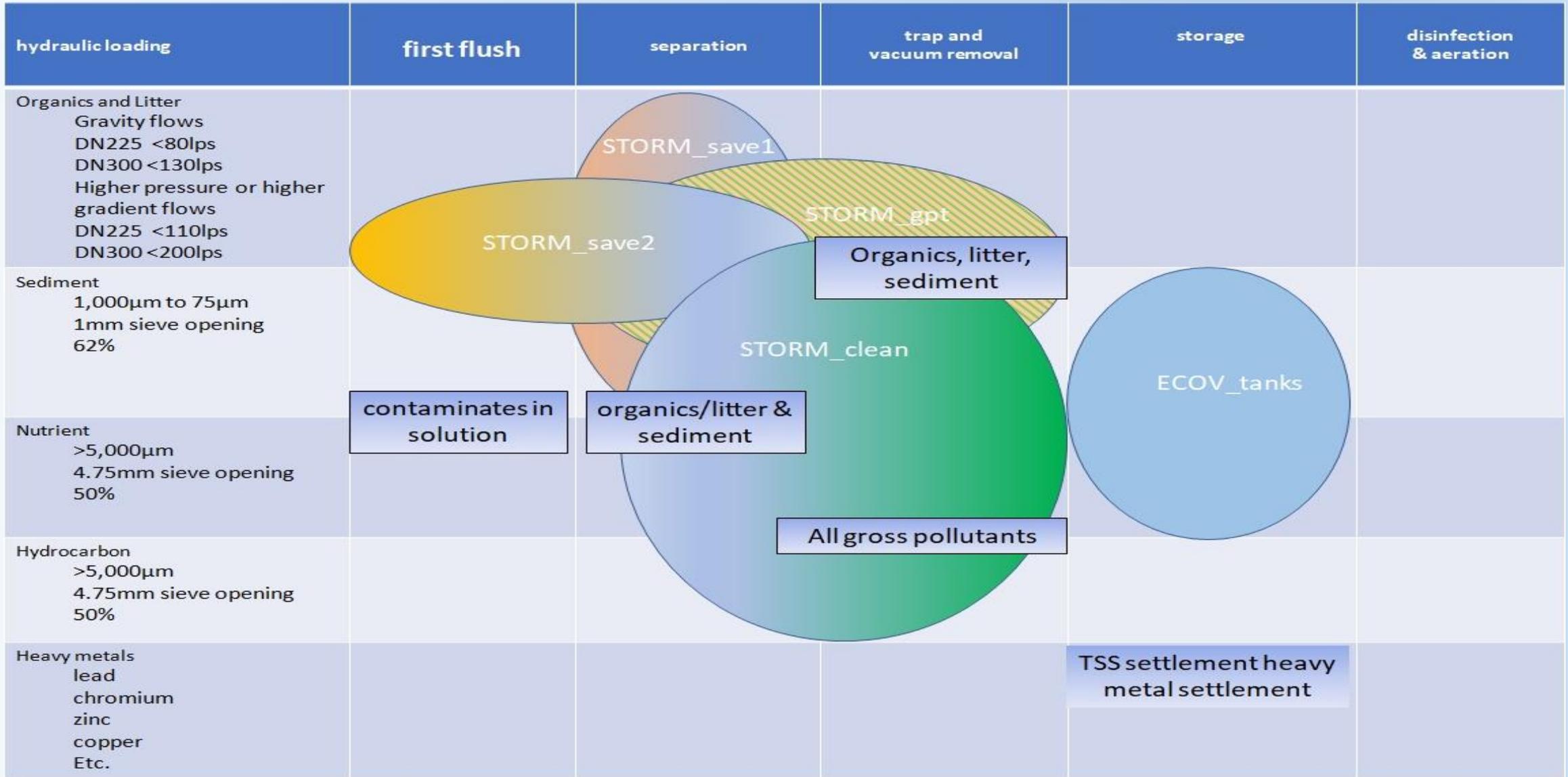


Micro Distributed Catchment Model

Stormwater Harvesting and Management System

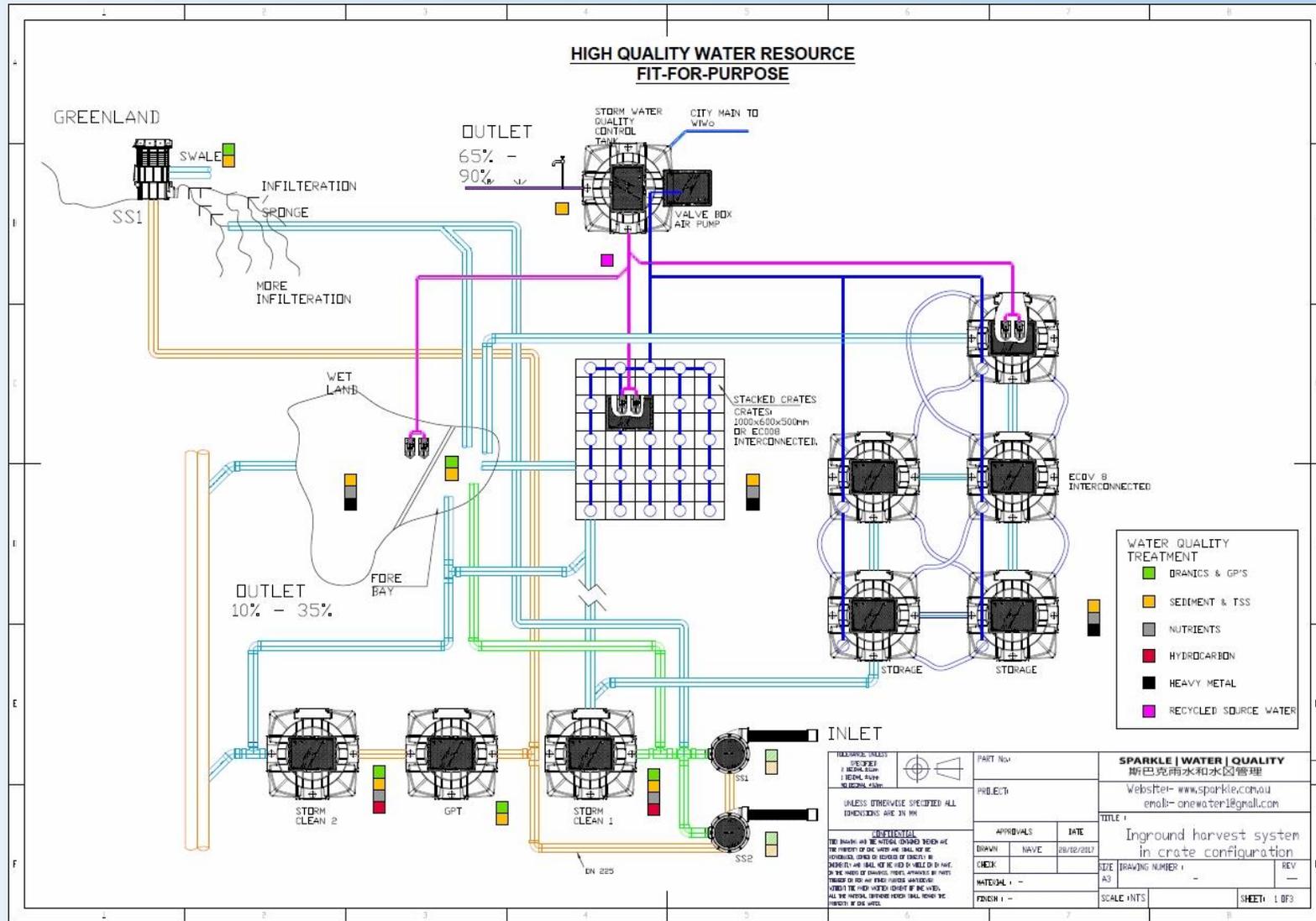


Contaminate Reduction Performance for Crucial Water Quality Improvement, and Sustainable Outcomes



Sparkle Water Quality

Typical System Schematic



For detailed information, pricing, and availability, please visit

1water.com.au