

Bathurst – is getting the largest stormwater harvesting scheme in the Southern Hemisphere



optimal stormwater



By Murray Powell – Optimal Stormwater
Darren Sturgiss – Bathurst Regional Council

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Incase you didn't know, Bathurst is a 3hr drive west of Sydney.

They had a little car race there recently.



Why Bathurst....

- Bathurst Regional Council has their water supplied from the Windurndale Dam. The town is getting bigger, whilst the dam is not.
- Drought periods in the past decade made finding an alternative water supply options a priority for Council. They got a NSW State Government grant to assist them fund the project.
- They went out for EOI
- They had a concept design done
- They went out for D&C tender to the 3 approved tenderers.
- The project is to provide harvested stormwater for potable reuse.....
Yes, Bathurst will be drinking it.

Pre contract...

- Optimal Stormwater elected to partner with the largest Construction contractor in Bathurst, who had an extensive history of working for Bathurst Regional Council.
- In combination, we won the project.



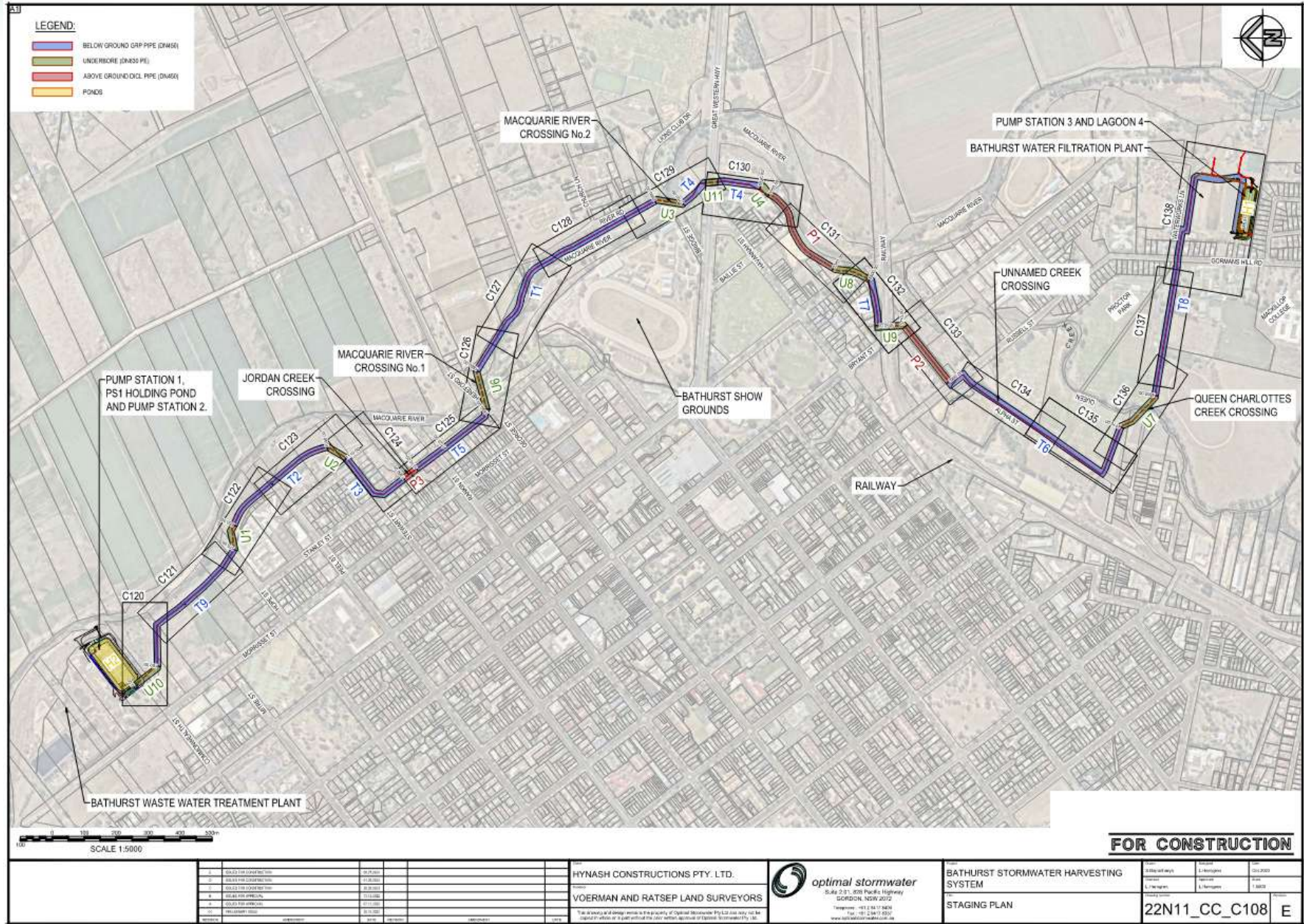
Design phase

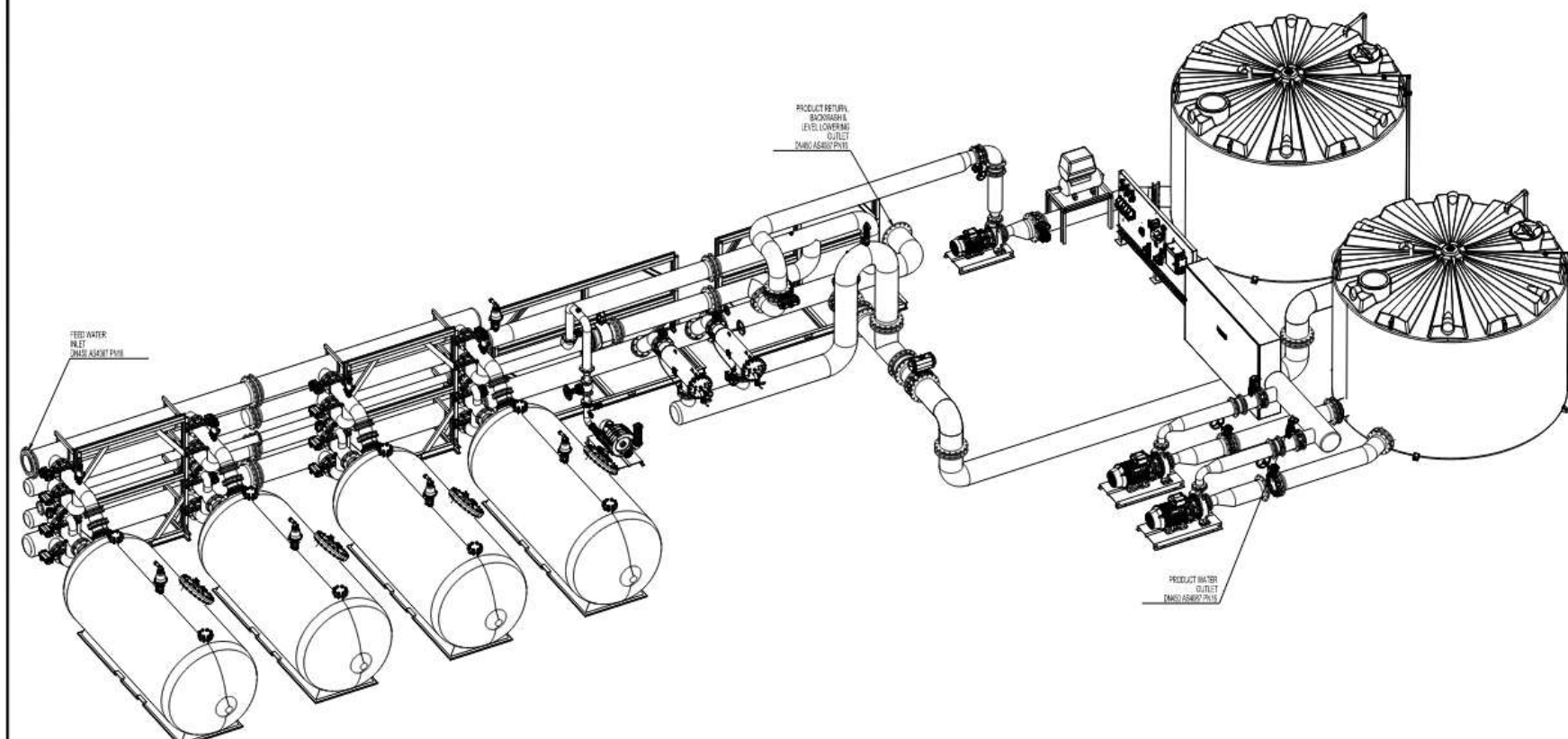
There were plenty of design challenges to overcome:

- Capture of the water from the town
 - Intake design (excluding fish, withstanding floods)
 - Heritage and Cultural complications (first nations and early settlers)
 - A 6 kilometre pipeline route (half through town)
 - Interaction with the town levy
 - Pipeline boring under the river
- There were no shortage of challenges

Design phase

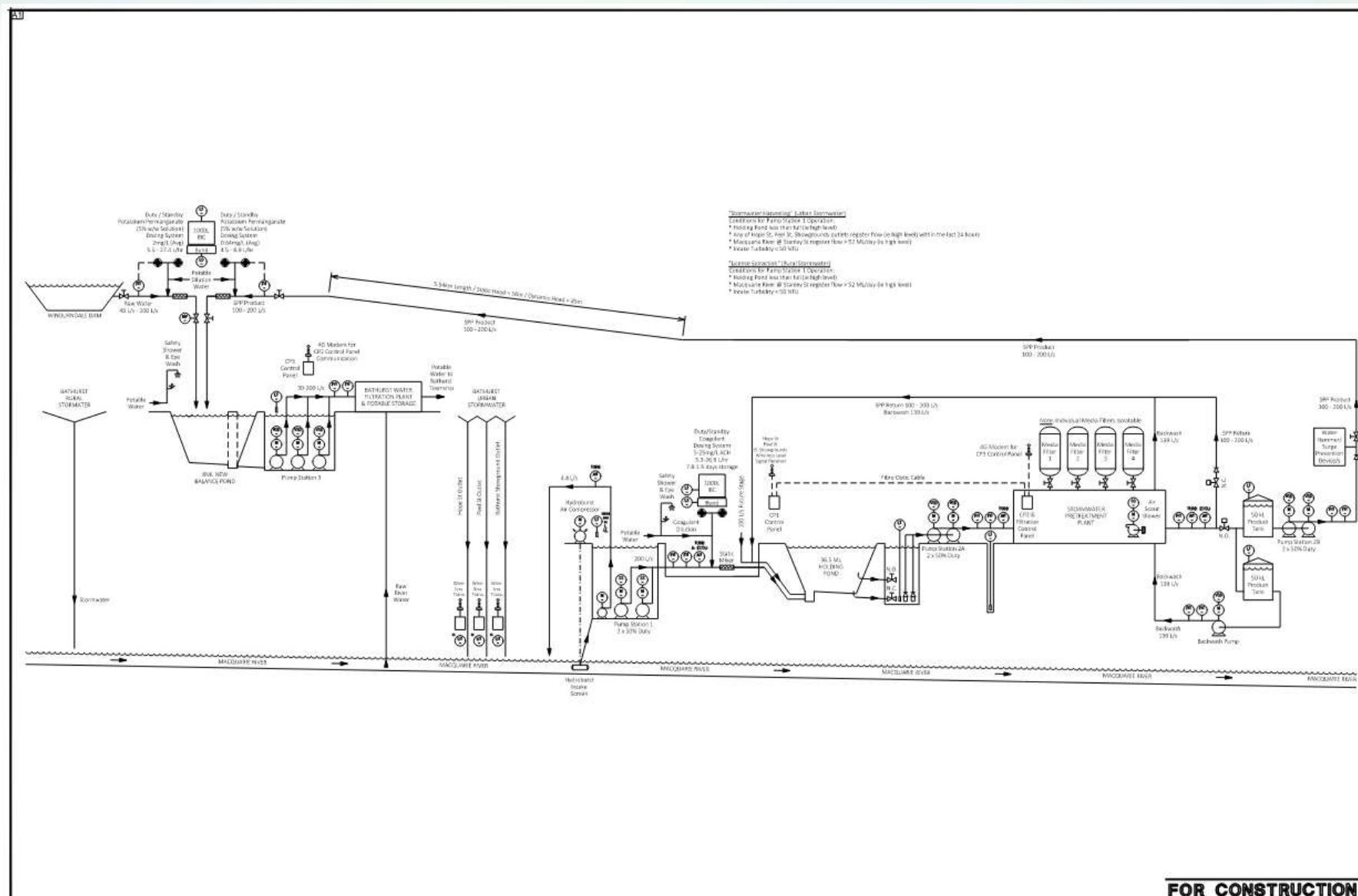






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FOR CONSTRUCTION

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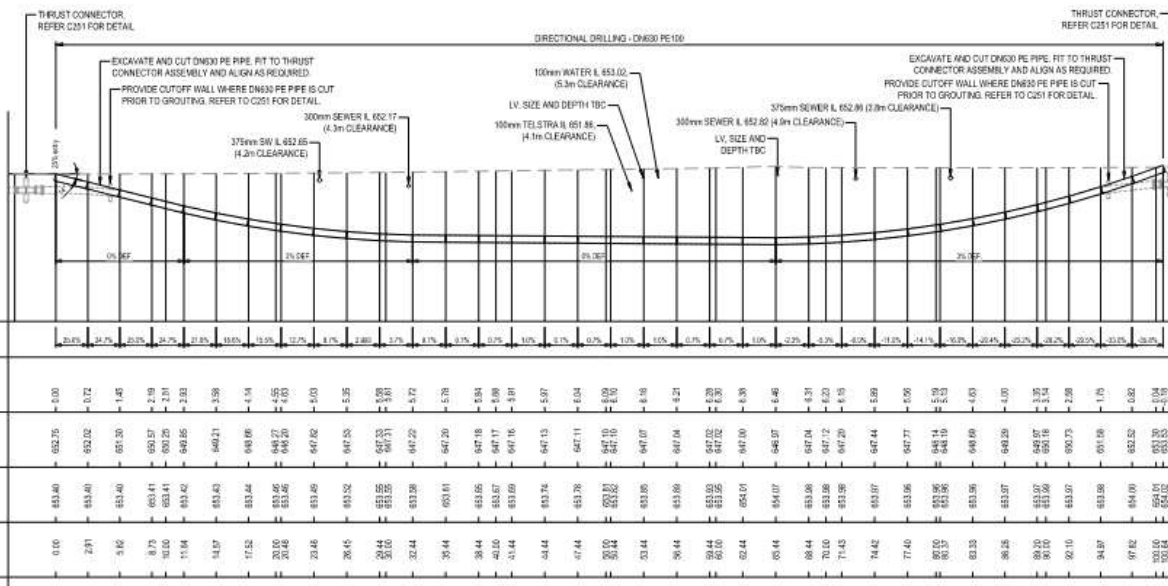
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BATHURST STORMWATER HARVESTING SYSTEM
PLANT OVERVIEW
PROCESS FLOW DIAGRAM (PFD)

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EXISTING SERVICES
ALL EXISTING SERVICES ARE TO BE LOCATED BY THE CONTRACTOR THROUGH CONTACTING THE RELEVANT SERVICE AUTHORITY PRIOR TO THE COMMENCEMENT OF ANY WORK.



FOR CONSTRUCTION

[illegible]

- The design is over 300 pages

The Solution

Water that falls on Bathurst eventually drains to the Macquarie River.

The design incorporates sensors on 3 of the town's stormwater lines, so when it's noted that stormwater is flowing from the town, this triggers the ability to then pull it out of the river.

Water is extracted at 200L/s and sent to a 32ML holding pond. It will likely have some turbidity, so coagulant dosing was included.

The Solution

Water is then pumped at 100-200L/s from the offtake, to the Council's Water Filtration Plant, where another holding pond with 8ML of capacity has been constructed.

From here, water is “shandied” with water from the dam, and sent through an existing treatment process, finishing with disinfection and the addition of fluoride, then its into the town water mains for distribution.

The Solution



Construction phase

The Construction phase started well enough, but soon the timing started to blow out. The ground under the 32ML open storage was founded on cobbles and the water from the river flowed easily through them.





Construction phase



Construction phase

There were boring and pipeline complications due to ground conditions and services, with the design required to change accordingly



Construction phase

The head construction contractor, unfortunately did not meet Council's expectations on a number of fronts, and their contract was terminated. However, Council were very happy with Optimal Stormwater, and they asked us to complete our works directly for Council.

We accepted and the project got back on track, with a new civil partner also working direct to Council.

Construction phase

In August this year, the Shed had been installed, so the million dollars worth of process control, electrics, pumps and filters could be installed.



Construction phase



Construction phase



Construction phase



Construction phase

The construction phase was not without problems:

- The previous civil contractor had dug through the levy, and when a big rain event occurred the pit filled with water (and also some fish)
- This all had to be pumped out, and the EPA became involved
- The water had low levels of some contamination, including PFAS that again caused the project to be put on hold.
- And when pipelines were pressure tested, leaks were found.

Construction phase

But Good news is coming:

- We expect the pumpwell to go in shortly, and the SuperPit can be filled, and levy reinstated.
- The pipelines can be finalised.
- The Offtake can then be constructed, and the storages can both be lined and finished off.
- Then its into the commissioning phase.

Commissioning phase

- There is always time allocated for testing the entire scheme:
- Setting the level sensors, and tuning the process control.
- Optimal Stormwater will commission the system and train the Council operators over the 2026 year.

Ongoing phase

Once operational, this scheme has been estimated to be able to supply half of the water demand for potable water in Bathurst.

The project has certainly had more challenges than any of us were expecting, but the end result will all be worth it.

It is believed that this is the largest stormwater harvesting scheme in the southern hemisphere.

Ongoing phase



to



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Thanks for watching!

Any Questions?