Institute of Hospital Engineers

Water Recycling

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Agenda

- Grass?
- Housekeeping
- Stormwater Fund
- Smart Water Fund.

The 1990's Bendigo Hospital

Before Water Restrictions

Current state of gardens

- Need recycled water to fill this tank

Housekeeping

- To date the Bendigo Hospital Campus uses 100,000Litres less water per day than the same time last year

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Housekeeping

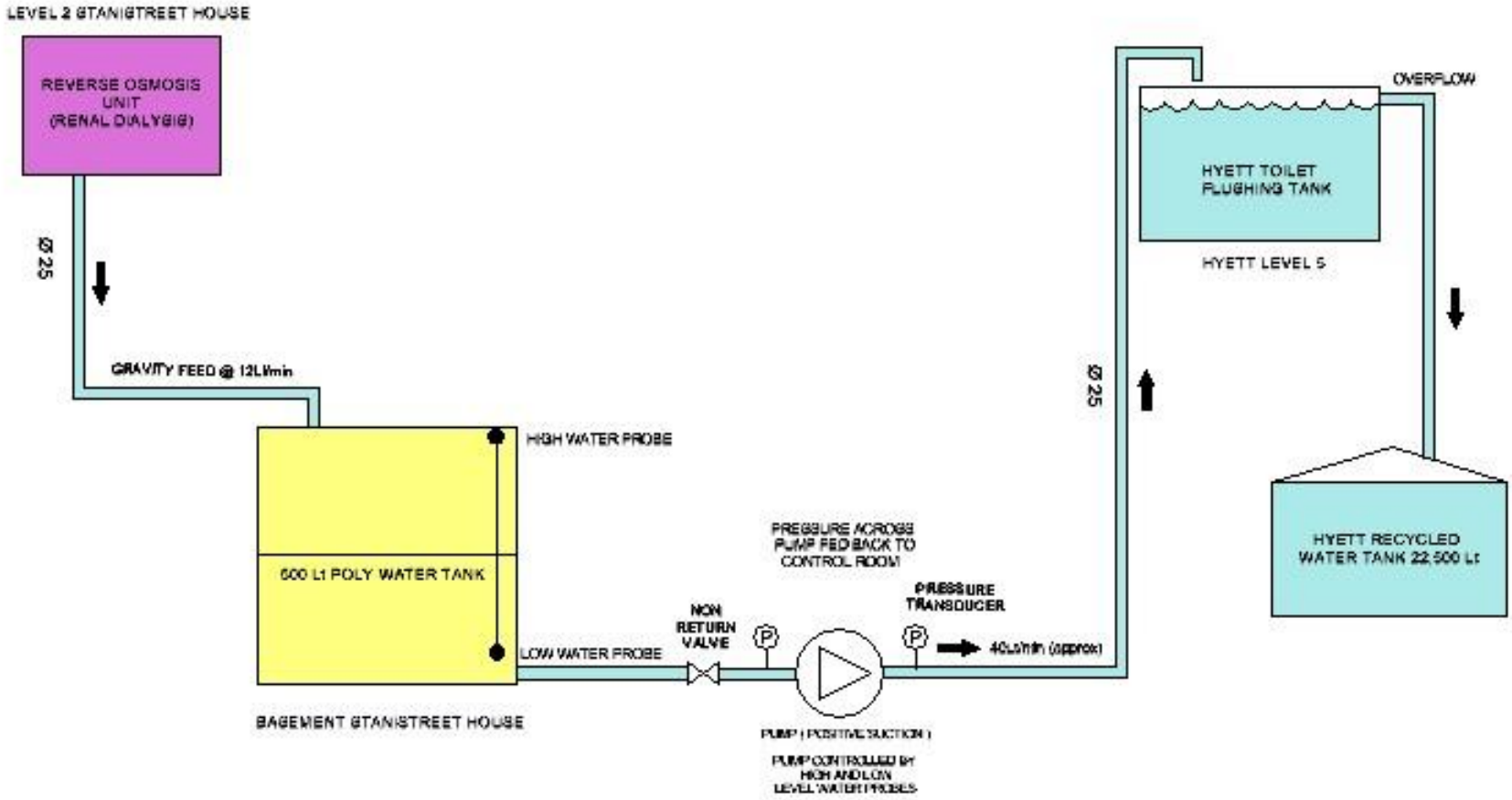
- Basic, Cheap, Effective
- Fix leaks, float valves
- Change to low flow shower heads
- Install flow restrictors
- Change to dual flush W.C.s.

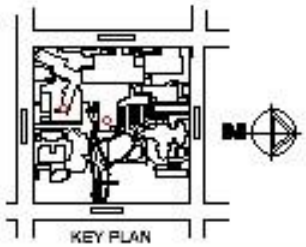
Stormwater Fund

- Recycle reverse osmosis waste water
- Install collection tanks
- Recycle filtration waste water
- Install rainwater collection tanks
- Collect & re-use fire sprinkler water.

Reverse Osmosis

- Use water rejected from Reverse Osmosis Unit in Renal Dialysis to fill acute site toilet flushing tanks.
- Pumping water from Basement Stanistreet House to tanks in Level 5 Hyett.
- Saves 1.7Ml per year.





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Engineering Department

Designed & Drawn By: G.Ellis	Checked By: R.Lancaster	File: [illegible].dgn

BHCG Reference: - - - -

Title: WATER RECOVERY DIAGRAM FROM RENAL DIALYSIS REVERSE OSMOSIS UNIT TO HYETT FLUSHING TANK

Date: 10 / 10 / 06	Scale: N.T.S
Revision: 0	Sheet: 1 of 1

Storage Tank and Controls

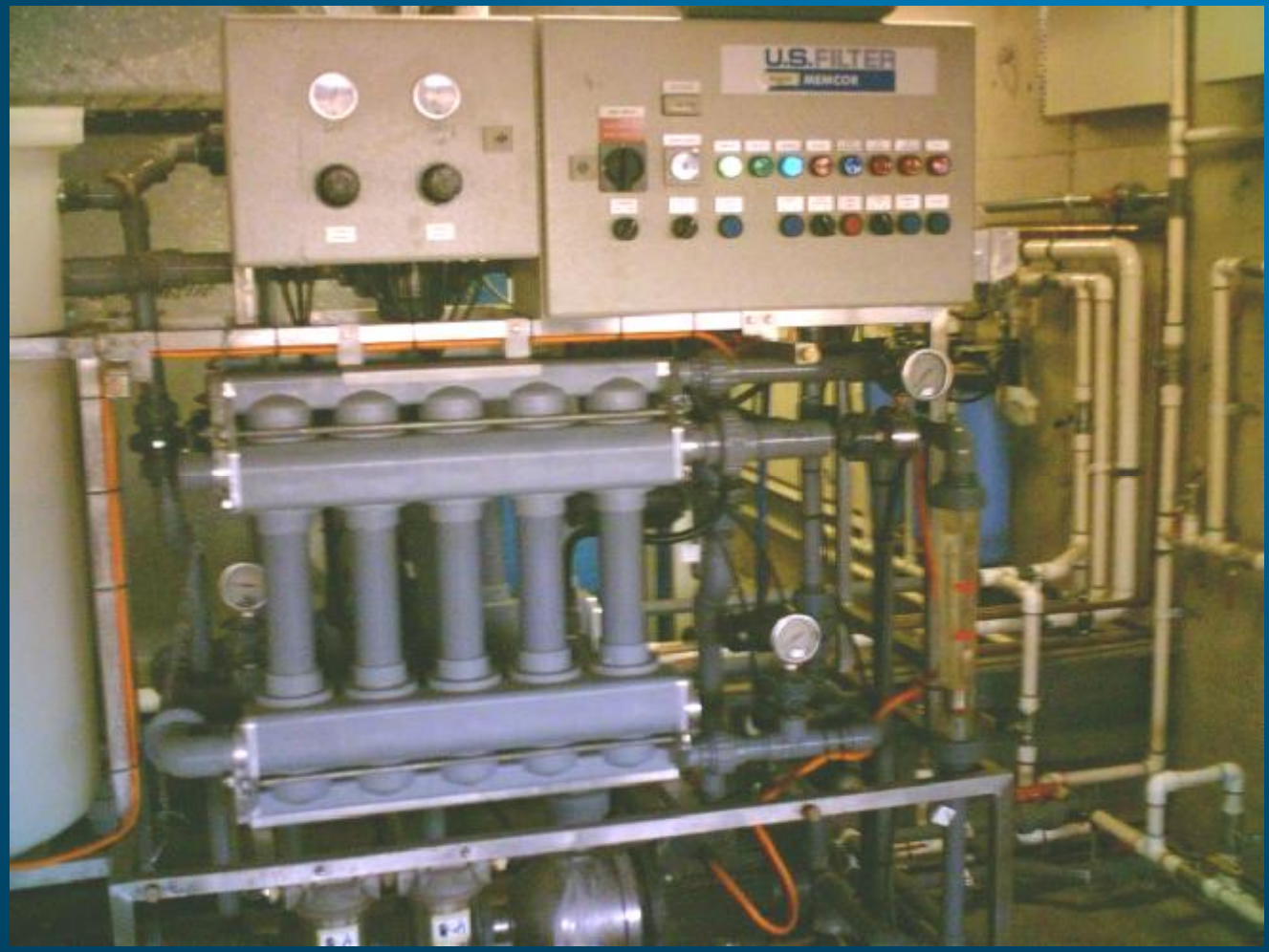
Toilet flushing Tank

- 1.7MLt’s per year into toilet flushing tank

Microfiltration Unit

- Back-flush water from micro-filtration unit cleans particles too large for membrane filter
- Waste water drains to 22,500Lt storage tank used to irrigate gardens at night
- Saves 4MLt’s per year, and rising

Filtration Unit



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Waste Water Storage Tank

Reusing pressure vessels

- 6,500Lt Calorifier previously used for storing domestic hot water

Connect to existing water storage

- Stormwater tank overflow to be connected to Calorifier

Stormwater Collection

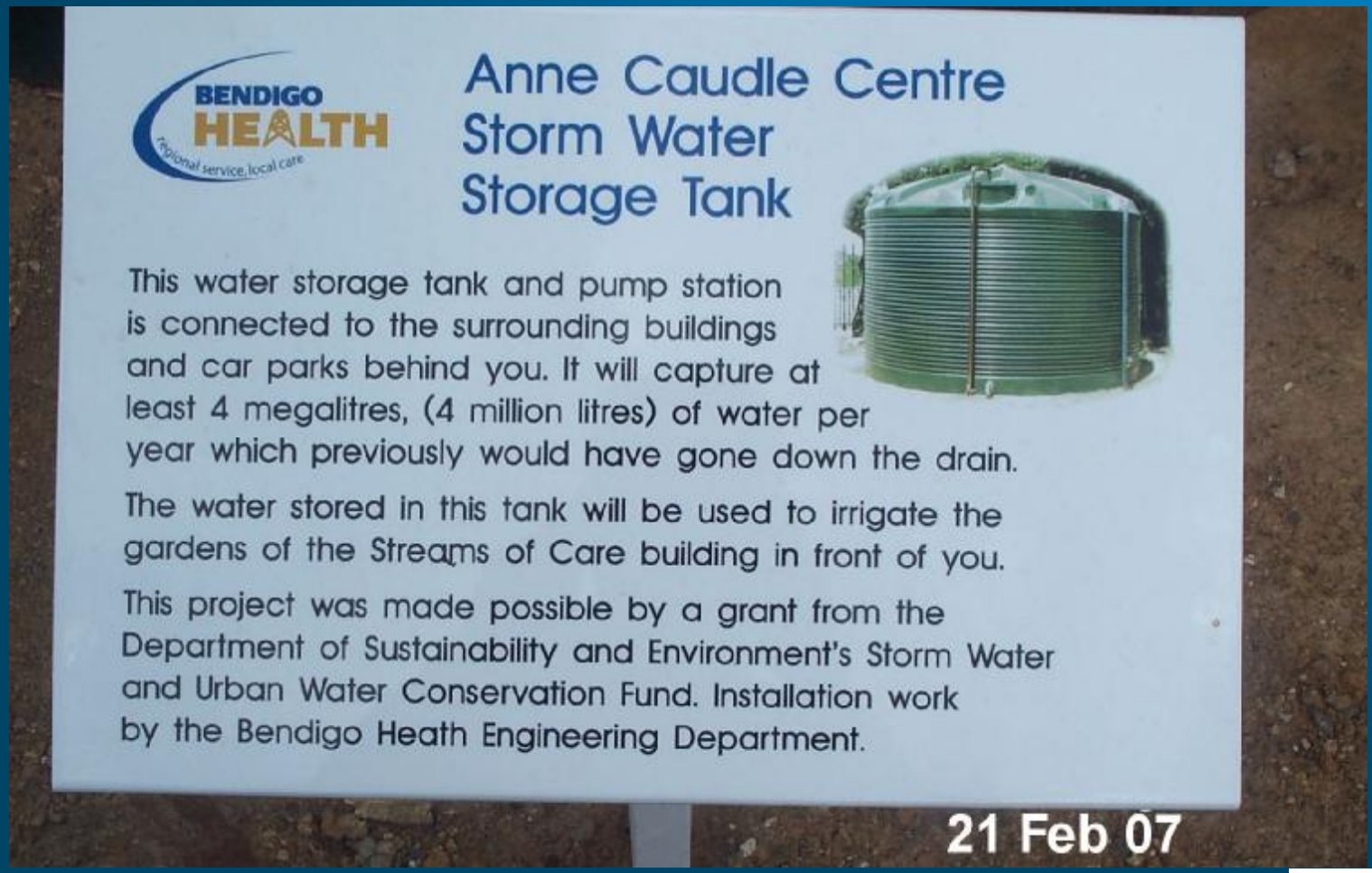
- Infrastructure Required:
- Collection pit
- Level probes
- Stormwater Pit Pump: Water from pit to tank
- Irrigation Pump: Water from tank to garden
- Pressure controls
- Level Indicators

Infrastructure Required

Stormwater pit and Irrigation Pump

- Pressure controller to prevent pump running dry

Stormwater Fund Signage



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Regulatory Signage, AS 3500

- Purple tap
- “Do not drink” sign within 100mm of tap

Stormwater Capturing Projects Annual Water Savings

- **ACC: 12.3Ml**
- **Joan Pinder: 200,000Litres**
- **Carshalton House: 240,000Litres**
- **Golden Oaks: 170,000Litres**
- **John Bomford: 100,000LtsLitres**
- **Stewart Cowen: 100,000Litres**
- **TBH: 8.3Ml….actual 36.5Ml**

Sprinkler System Alarm Testing

- Each control valve assembly, flow switch alarms are tested weekly, quarterly, annually & 3 yearly
- Annual tests & drain system for repairs (isolations) etc approximately uses 60,000Lt per year

Sprinkler Isolation Valve

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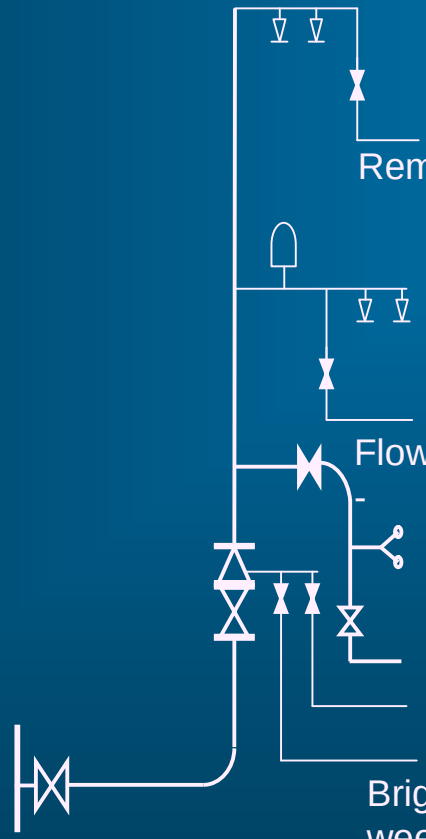
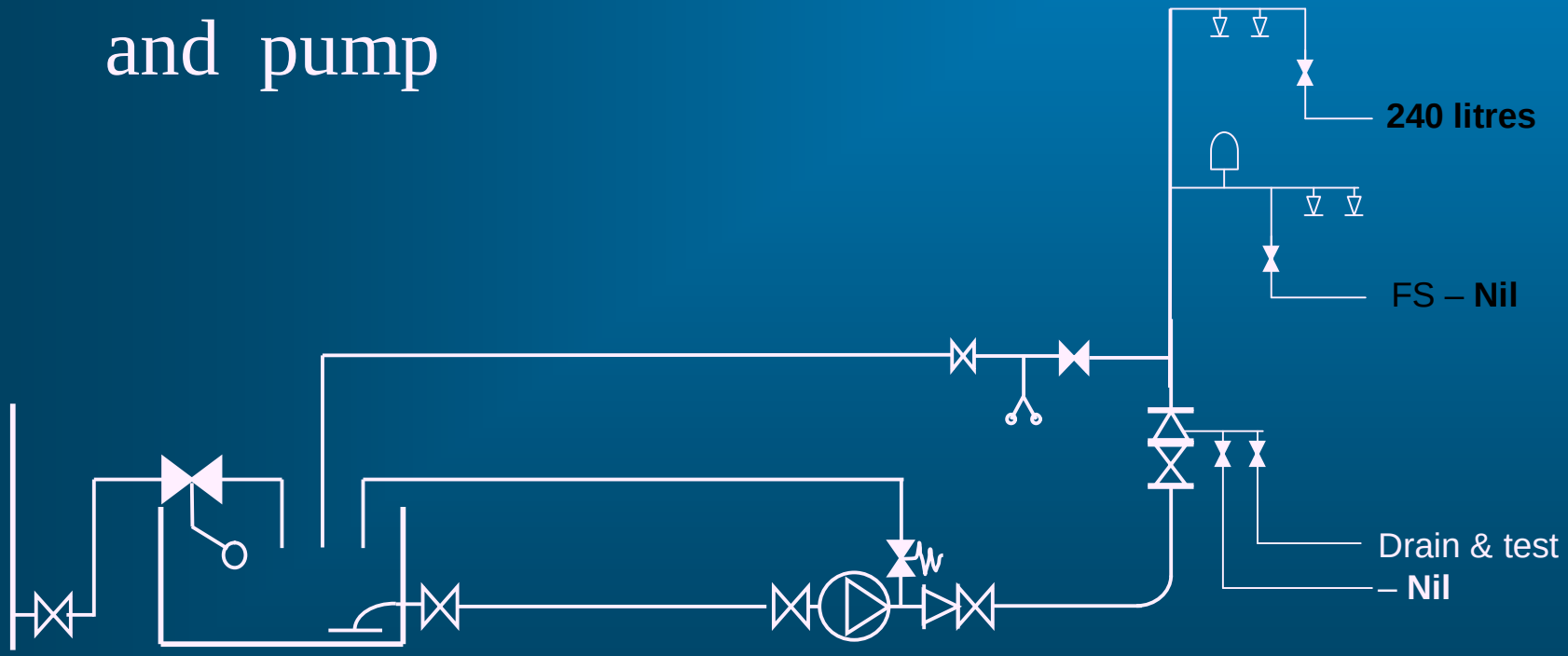
Sprinkler Network



Testing, Draining –Tank and Tank Return Lines

- Requires the installation of tank, return lines and pump



Final Installation

- Tank also collects stormwater

Future funded projects

- Class A recycled water to Laundry (60Ml per year) and boiler-house (67Ml)
- Class A recycled water to flush toilets (around 10Ml per year)
- Recycled hydrotherapy pool filter back-flush water to irrigate gardens
- Recycle boiler house cooling circuit water to irrigate gardens

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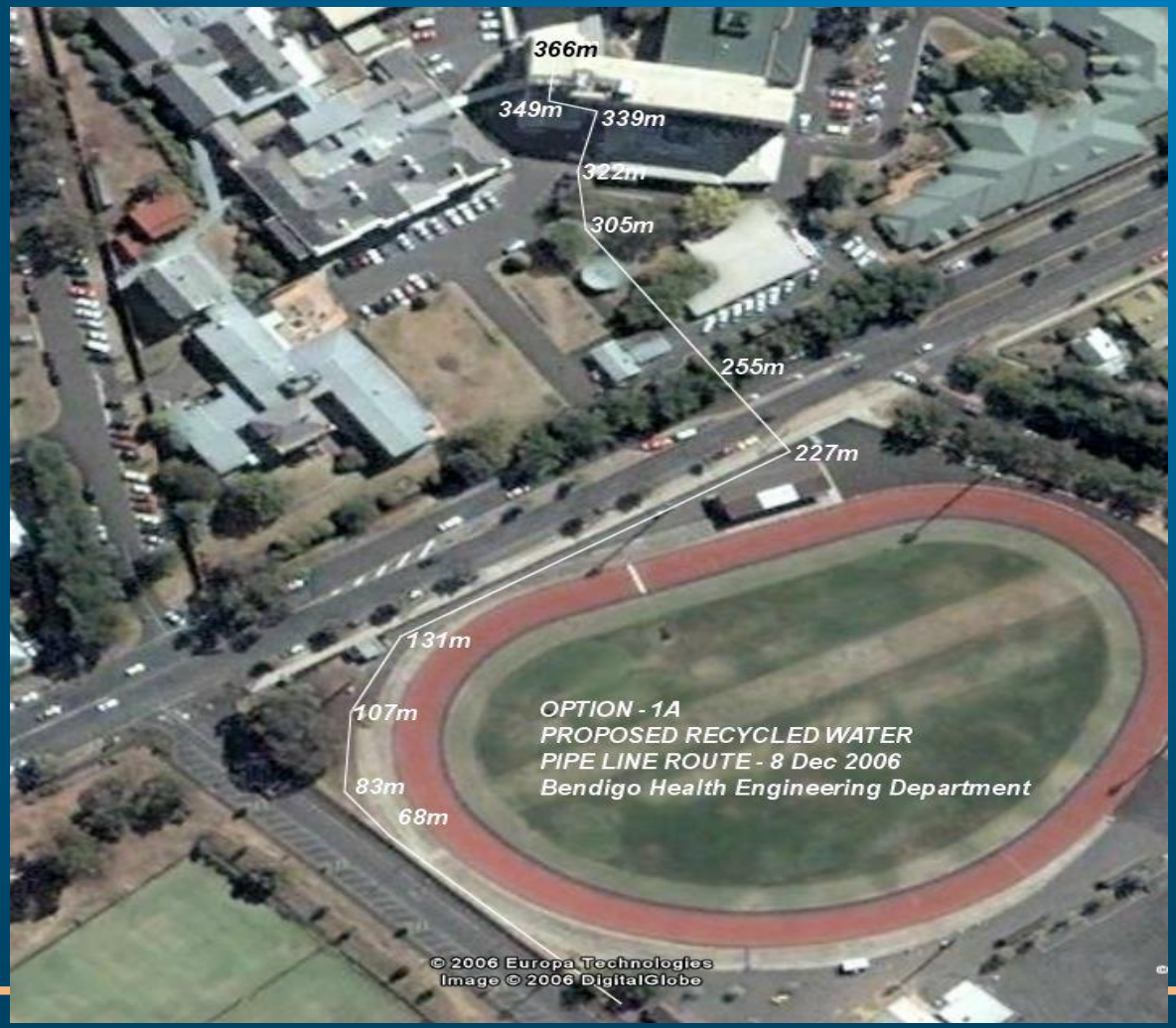
Recycled water to Laundry



Hydrotherapy Pool

Divert back flush water to stormwater collection pit

Public Health Requirements

- Formulate a risk management plan for each recycled water system
- Follow EPA Dual Pipe guidelines to conduct risk assessment
- Customer site health and environment management plan
- Involve Infection, prevention and control unit.

Any Questions?

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