

From Bare Soil to Benchmark Performance:
Seven Years of Phytocap Management at Drysdale Landfill

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Dr Melissa Salt, ATC Williams
Mr David McNamara, City of Greater Geelong
Mr Rylan Bennett, City of Greater Geelong

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DRYSDALE LANDFILL – 7 YEARS IN 15 MINUTES

- Why a phytocap was selected
- How it was constructed
- Why establishment took years
- What seven years of monitoring show
- What we would do again, and differently
- What is Council's perspective



Photo courtesy of Trevor Hume, BRM Environment

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WHAT IS A PHYTOCAP?

Compacted Barrier Cover



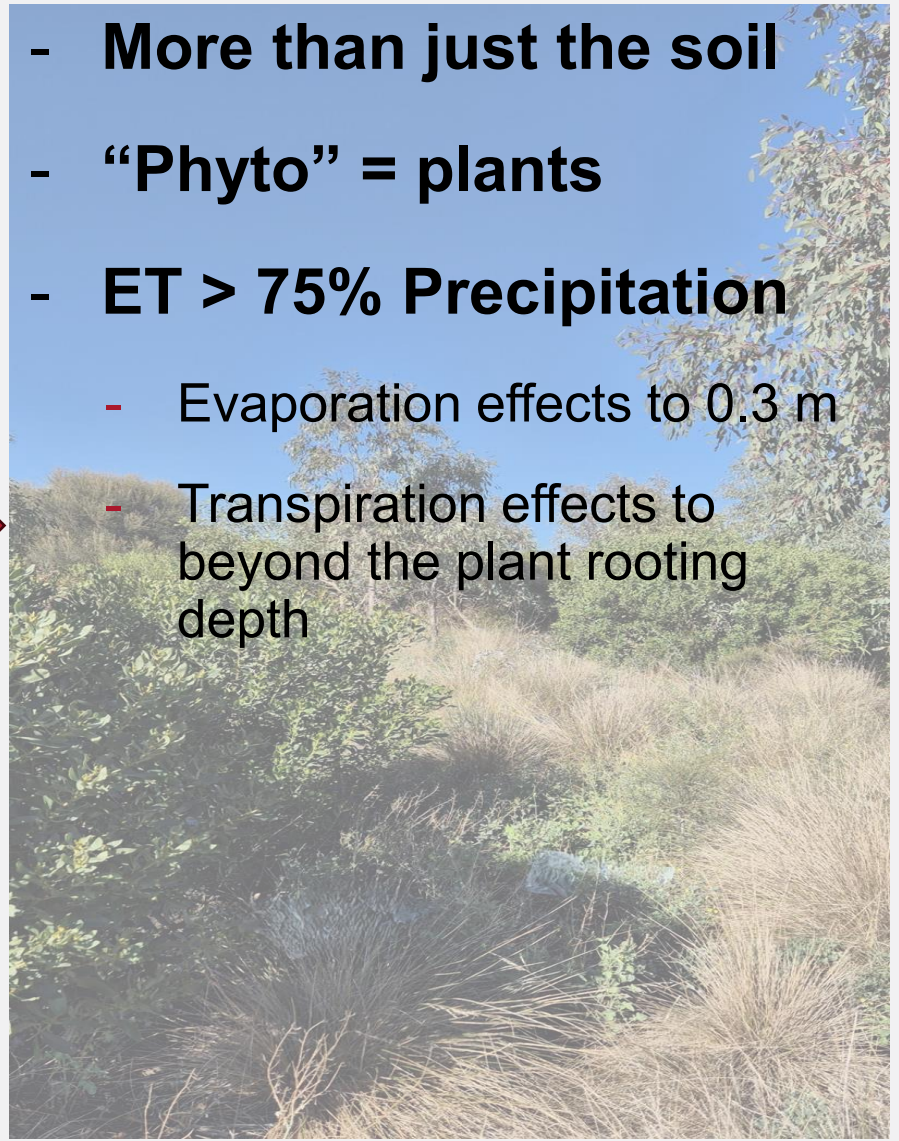
Geosynthetic Barrier Cover



Phytocap





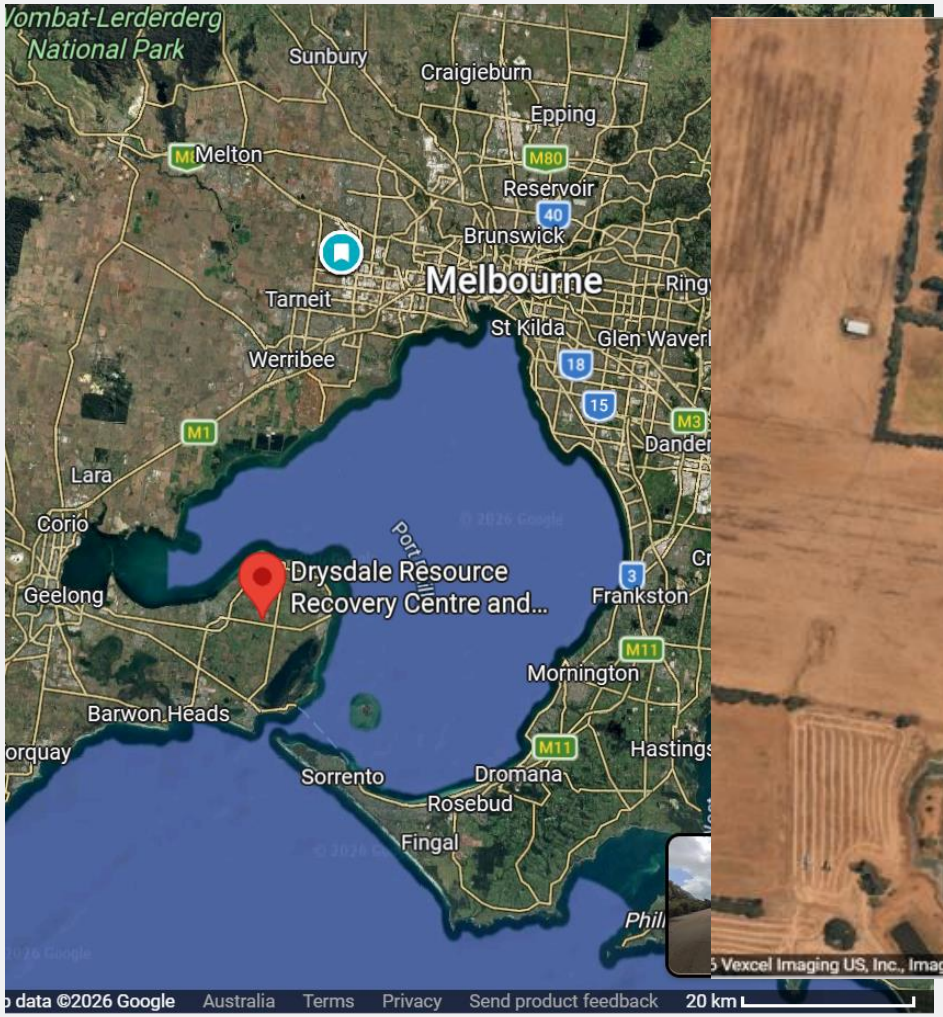


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WHERE IS DRYSDALE?





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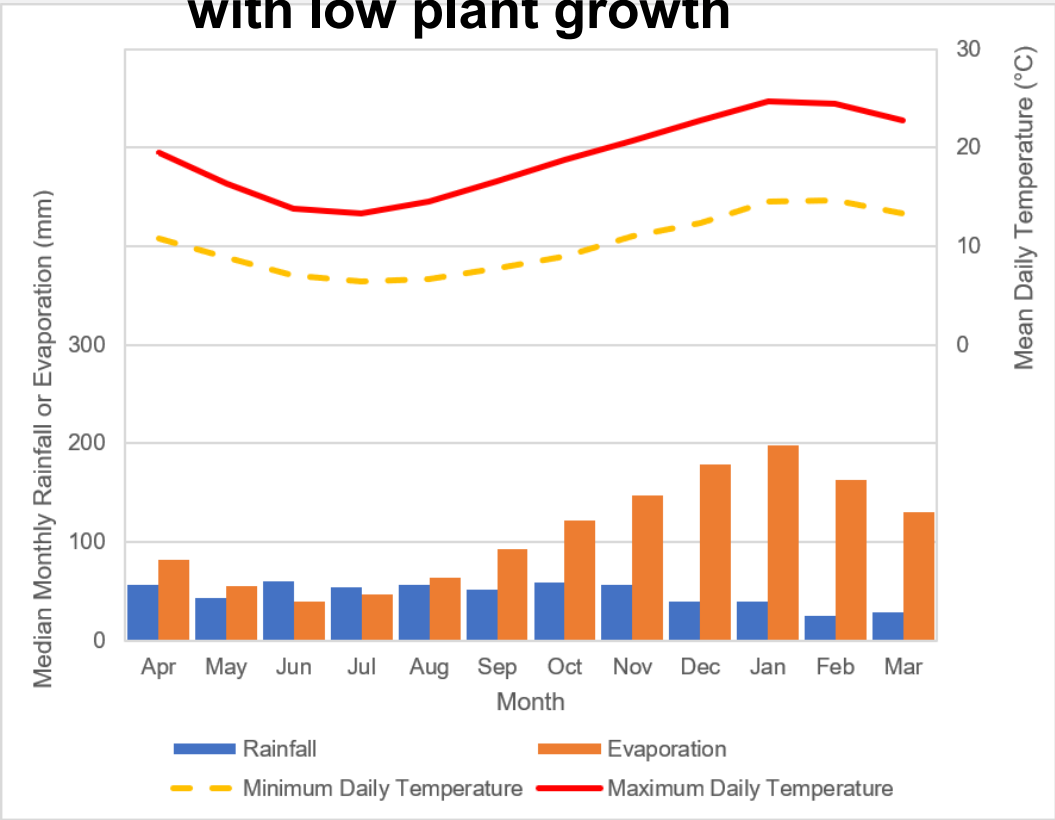
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CRITICAL DESIGN PERIOD

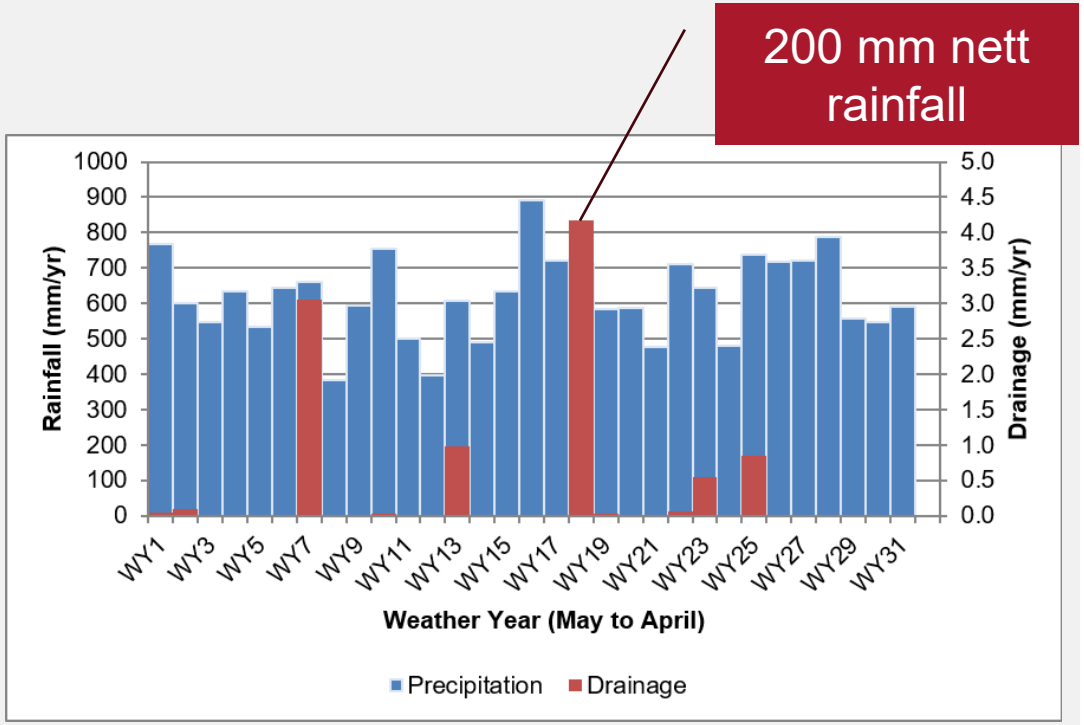
Temperate Oceanic Climate

- **Rainfall exceeds evaporation in June and July which coincides with low plant growth**



Design Prediction

Statistic	Predicted Drainage (mm/yr)
Median	0.00
Years > 0.27 mm	5 out of 31



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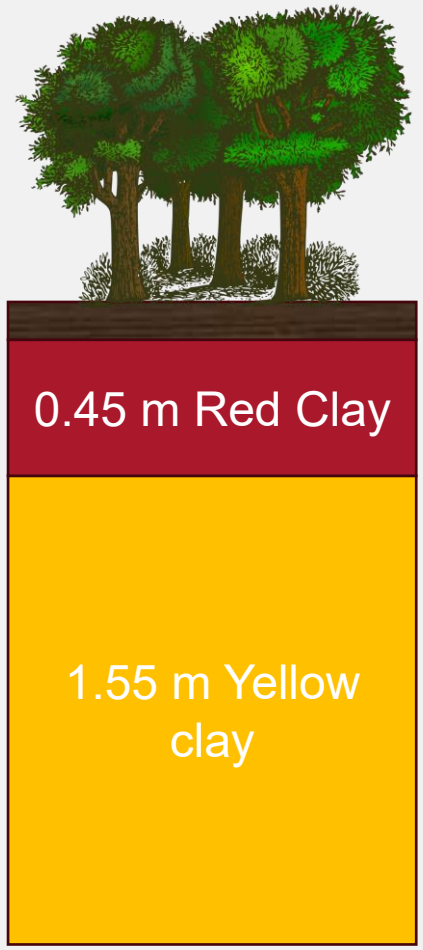
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CONSTRUCTION FROM LOCAL MATERIALS

Constructed in 2018

Using “unsuitable” clay from cell excavation

No topsoil available so >100 mm mulch applied to support soil fertility







Photos from Tonkin Consulting

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ESTABLISHMENT TAKES YEARS NOT MONTHS













Photos sourced from Google Earth

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MOTHER PLANTS CAN AID ESTABLISHMENT

September 2022



October 2025



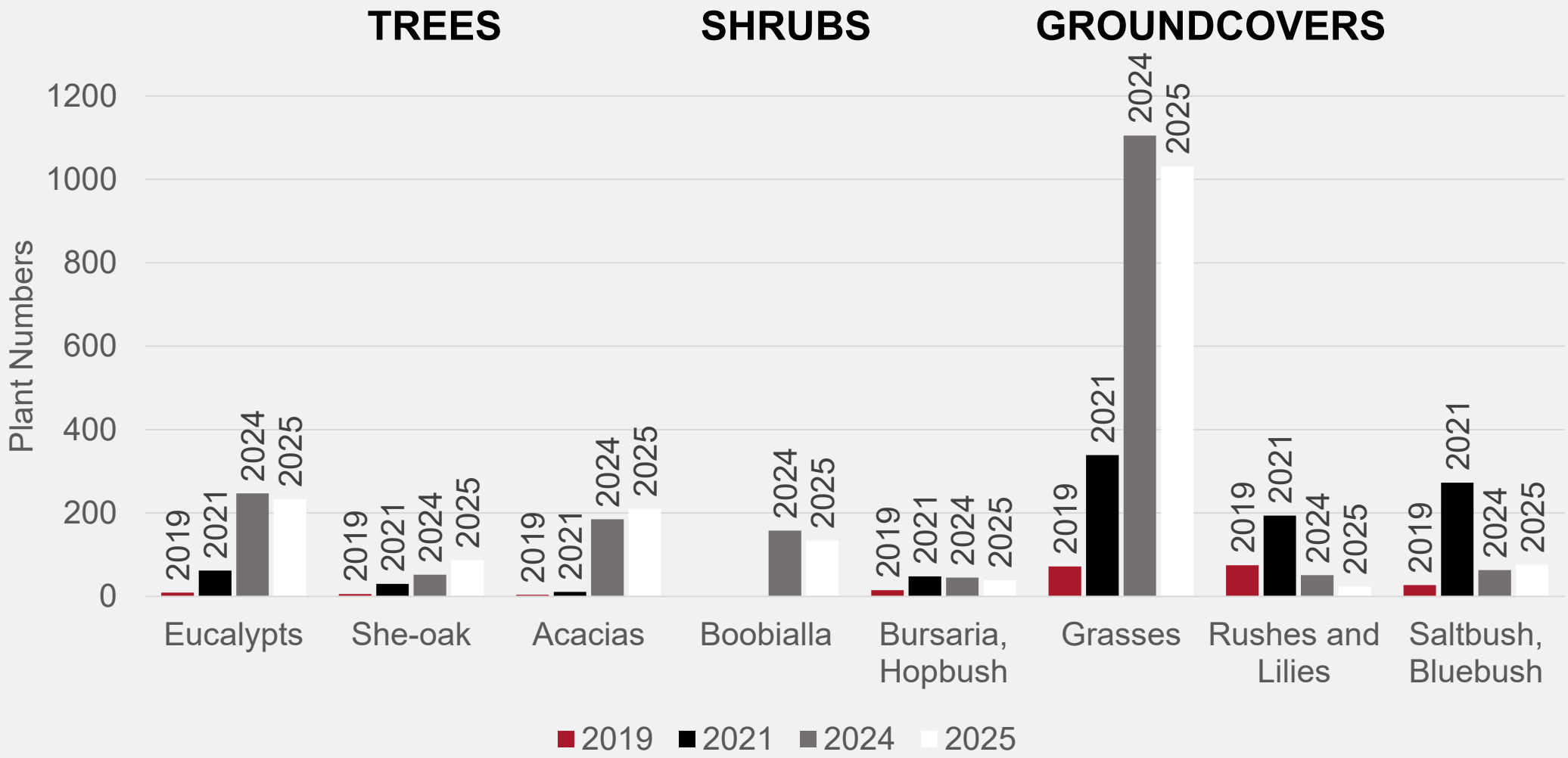
Microsites created by mature Poa and then Boobialla

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VEGETATION IMPROVEMENT



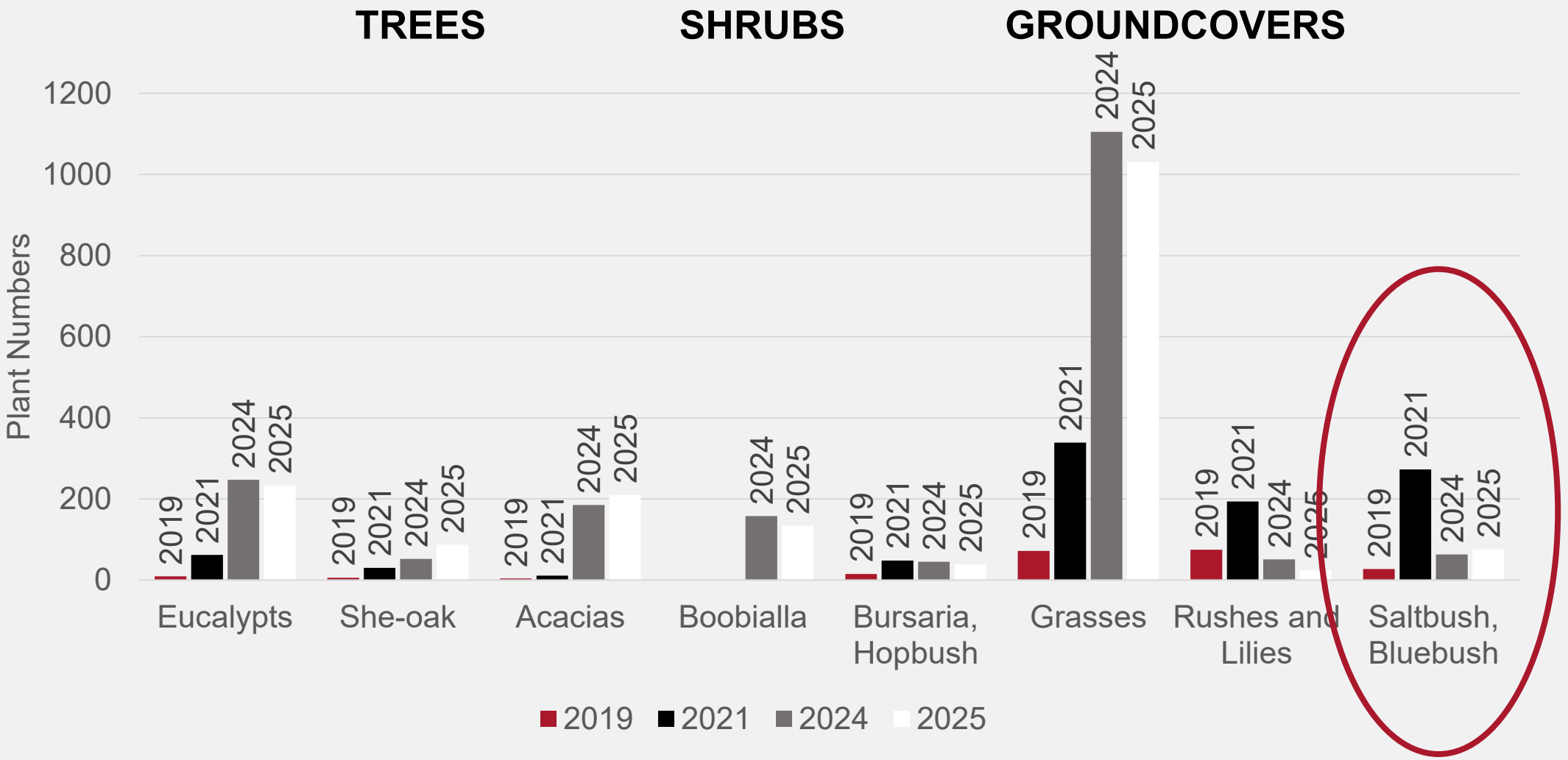
In 2019, 200 plants were growing. By 2025, 2000 plants were growing

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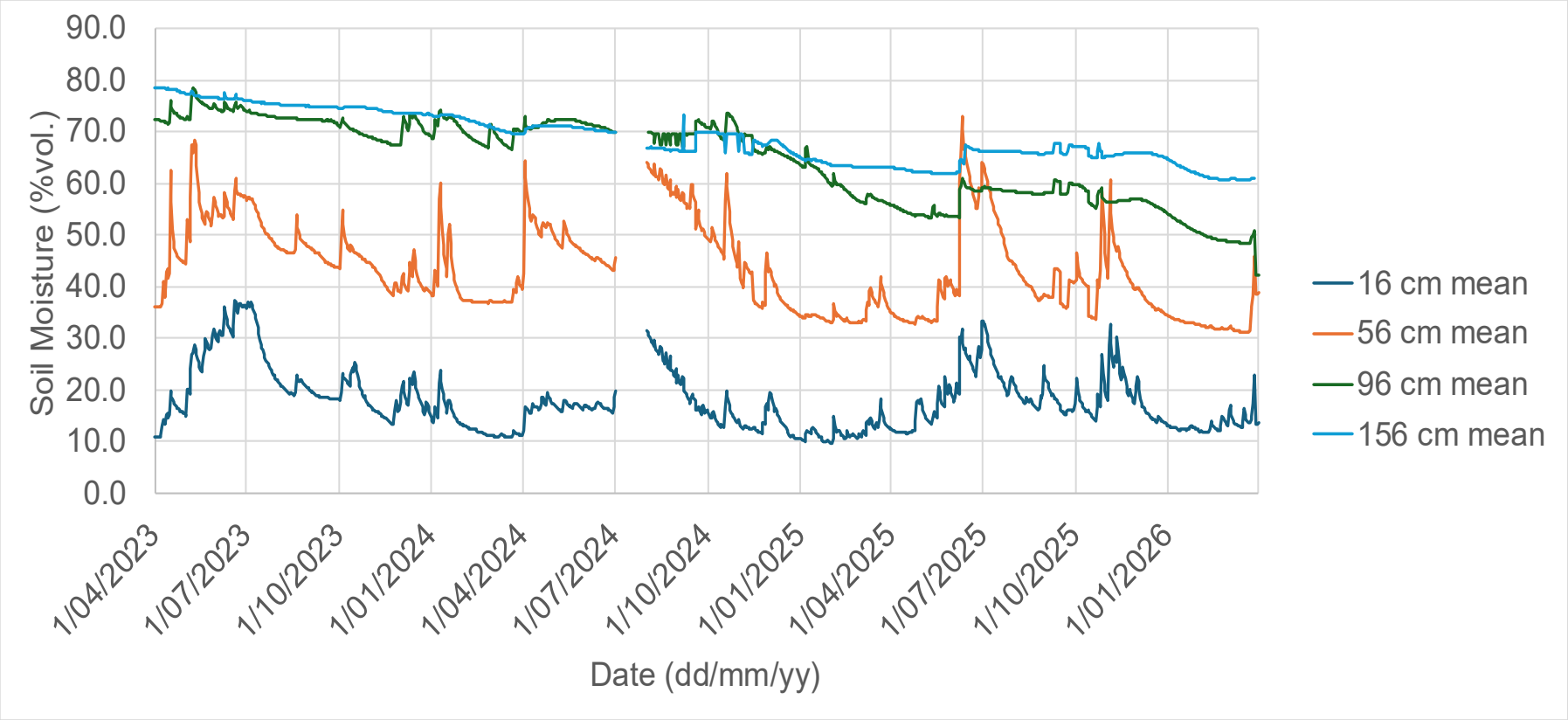
VEGETATION IMPROVEMENT



Xerophytes controlled by increased density of higher water use plants

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INCREASING EFFECT OF PLANT ROOTS



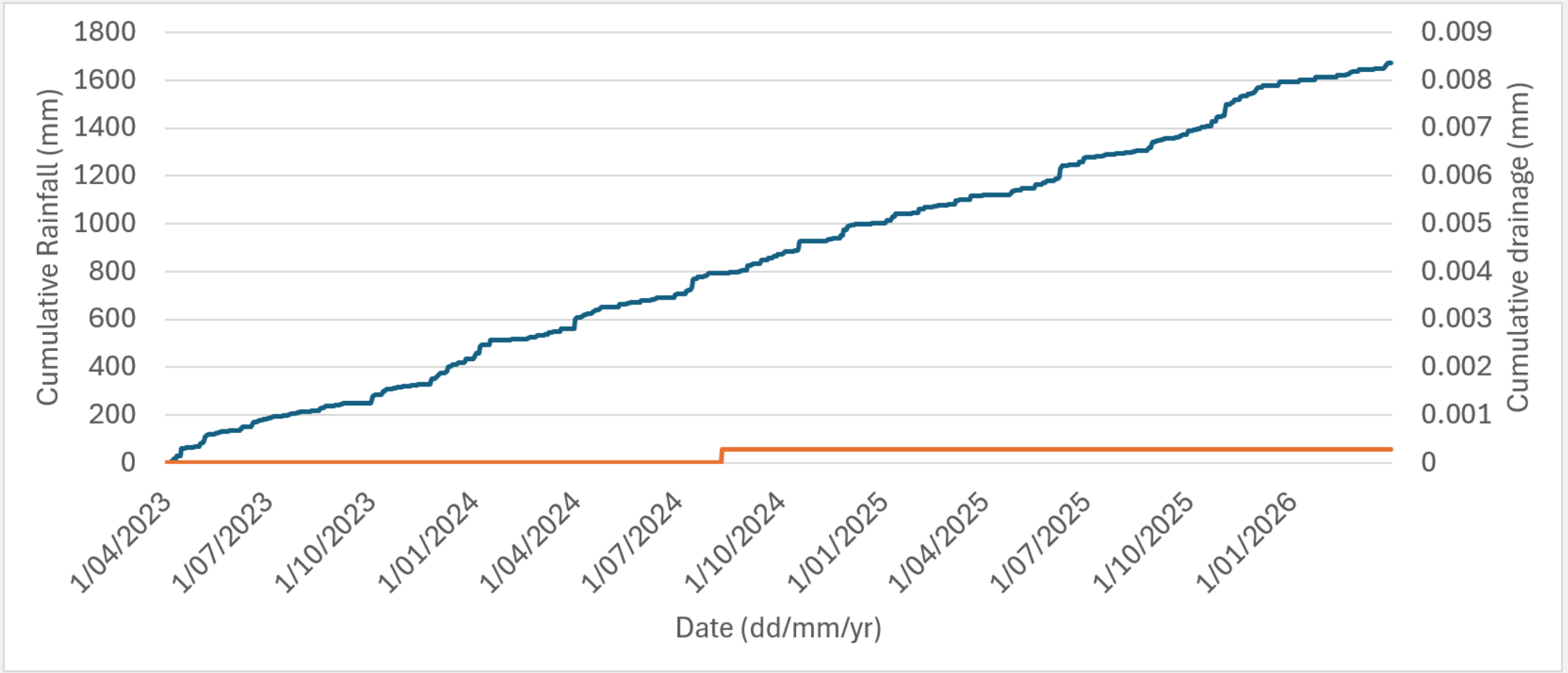
- **Movement through the soil higher than expected**
- **Roots starting to affect > 1 m depth after 2-5 years**

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ONE MEASURED DRAINAGE EVENT



- **Was a lysimeter-based trial required for this site?**

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FIVE LESSONS FOR YOUR NEXT PHYTOCAP

- Plan for 3-5 years of active vegetation establishment
- Trial data are used to calibrate the model – they do not validate the cap performance
- Site specific trials should not be prescribed for all sites
- A monitoring program (soil and/or vegetation) is essential to monitor performance not justify the design
- Get the right people to help you – engage a soil scientist and a revegetation contractor from the design phase

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WIN! WIN! WIN!



- Cost-effective solution
- Improved environmental outcomes
- Enhanced site rehabilitation and biodiversity

WORKING TOGETHER
FOR A THRIVING COMMUNITY

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COST COMPARISON

Phytocap costed in 2026 – $4.9million

Traditional cap costed in 2023 (likely to have risen significantly due to fuel, supply costs etc) - $21million



A phytocap is not a lower-effort cap. It is a different type of cap, one that replaces manufactured barriers with monitored soil-water storage, vegetation performance and active establishment management.

Dr Melissa Salt
Senior Principal Scientist
ATC Williams
melissas@atcwilliams.com.au

David McNamara
Team Leader Waste Service Delivery
City of Greater Geelong
DMcNamara@geelongcity.vic.gov.au

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