DEVELOPING STORMWATER HARVESTING SYSTEMS AT VU'S FOOTSCRAY PARK AND SUNSHINE CAMPUSES

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THE NEW WAY TO DO UNI

Greater Western Water

Stormwater Victoria Conference – 7th June 2023

VICTORIA UNIVERSITY

OUTLINE

- Key Drivers for this project
- Stormwater harvesting from VU's Footscray Park Campus and surrounding catchments
  - Irrigating the Footscray Park
  - High value to the new Footscray hospital
  - Options for stormwater diversion treatment, storage and distribution
- Stormwater harvesting at the Sunshine Campus
  - Complementing the Dempster Park SWH system
- Conclusions

KEY DRIVERS FOR THESE SWH PROJECTS

KEY DRIVERS

- Population increase - A doubling of population forecast for next 30-years
- Health and Wellbeing – Providing green/ blue spaces for addressing physical/ mental health, especially the west of Melbourne
    - Supporting Greening The West to deliver community health & liveability outcomes (Chronic Health (obesity, cardiovascular, diabetes, mental health high in Melbourne's west).
- Preserving precious water - Preserving potable water for drinking and substituting everything else with Recycled water from our wastewater plants and Stormwater from our drains
- Developing collaborative partnerships – This stream is named "Fostering Collaboration and Building Trust"

INVESTING IN WATER-ENABLED GREEN AND BLUE INFRASTRUCTURE CAN DELIVER BENEFITS TO PHYSICAL AND MENTAL HEALTH BY MAKING OUR COMMUNITIES COOLER, HEALTHIER AND MORE ATTRACTIVE PLACES TO LIVE, WORK AND RECREATE

Blue + Green = Liveability

WSAA's report on how blue and green infrastructure make vital contribution to liveability outcomes

WHAT ARE GREEN-BLUE INFRASTRUCTURE?

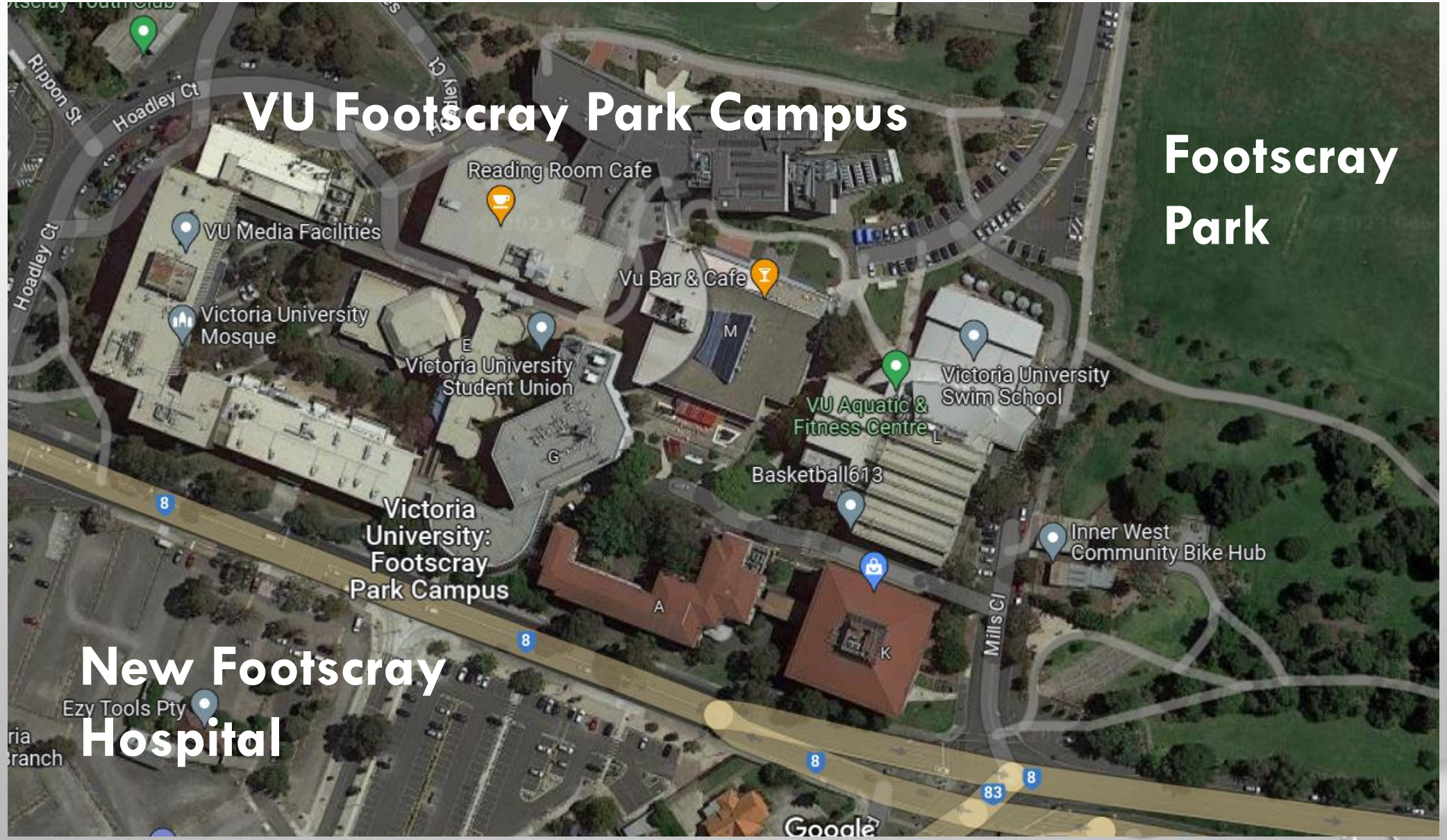
- Green-Blue infrastructure refers to systems and practices that mimic natural processes to infiltrate, evapotranspiration, or store and reuse stormwater or runoff on the site where it is generated.

- It is called various names like WSUD, NbS, LID…

- Examples include green roofs, trees, raingardens, wetlands, porous pavements, recycled water, stormwater harvesting, etc.

STORMWATER HARVESTING FROM VU'S FOOTSCRAY PARK CAMPUS

VU'S FOOTSCRAY PARK CAMPUS



THE NEW FOOTSCRAY HOSPITAL

THE NEW FOOTSCRAY HOSPITAL

- Pedestrian overbridge connecting the hospital to VU
- Direct patients, visitors at the hospital to Footscray Park

THE NEW FOOTSCRAY HOSPITAL

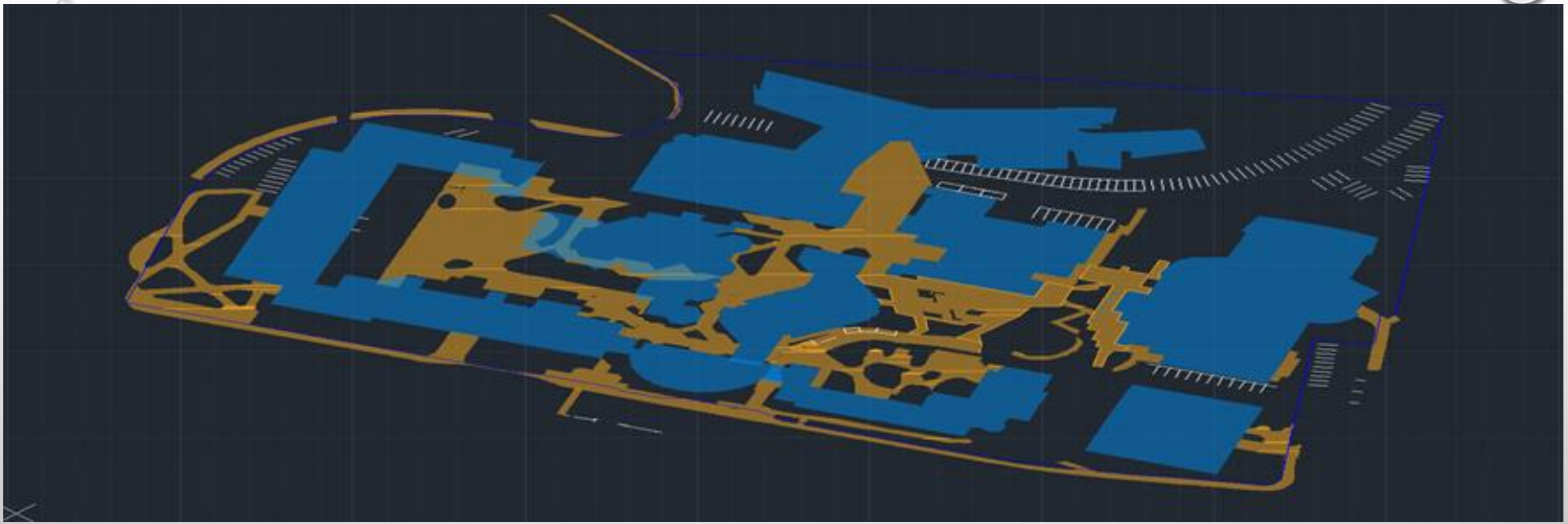
- Hospital construction in full swing
- Construction of the pedestrian overbridge has started

VU'S FOOTSCRAY PARK CAMPUS

- Roof area – 24210 m^2
- Pavements – 5220 m^2

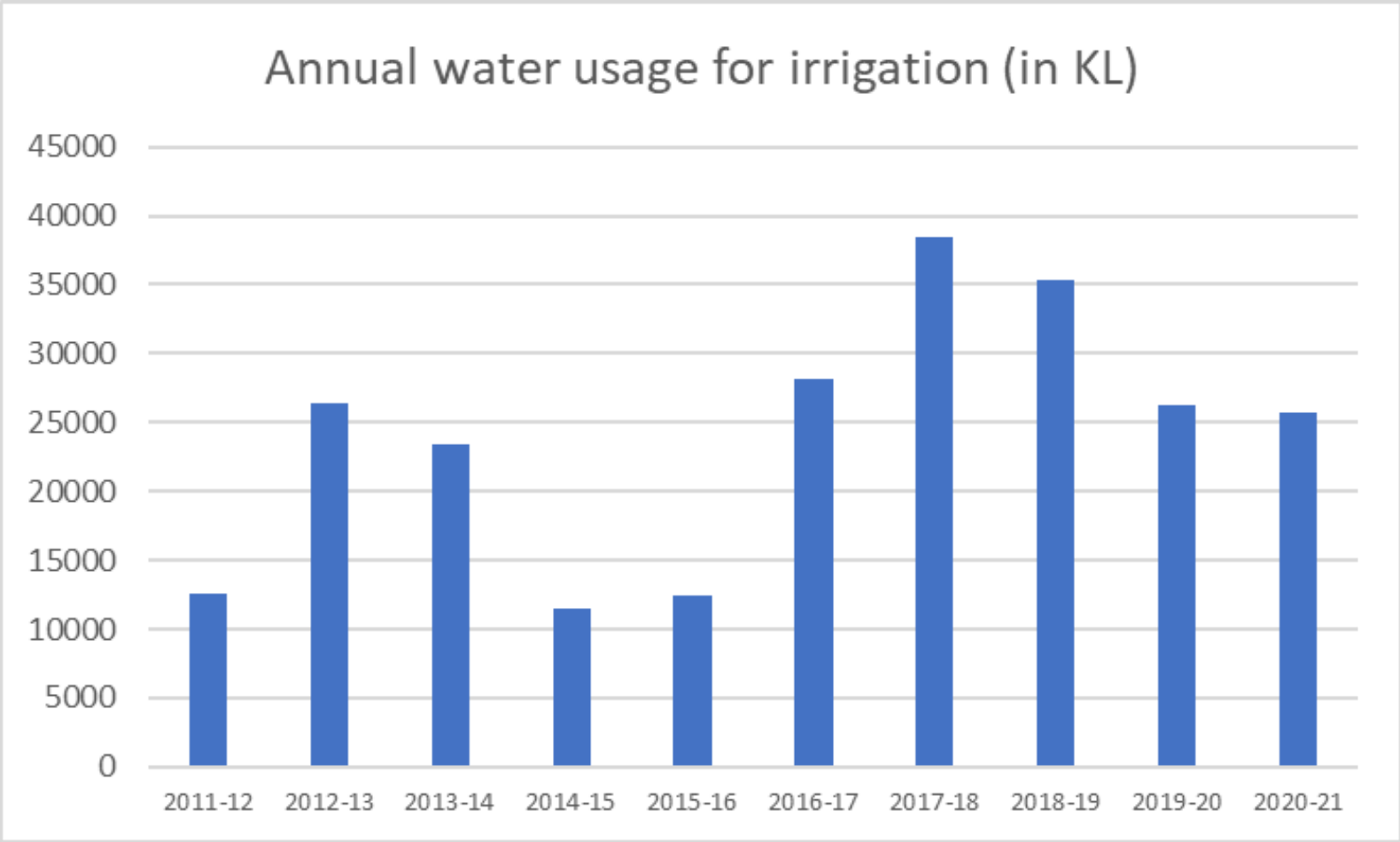
	Roof area (sq m)	
Building A	2890	
Building C	1370	
Building D	2890	
Building E	1750	
Building G	2000	
Building K	1600	
Building L	3880	
Building M	2500	
Building P	5330	
	24210	sq m

VU'S FOOTSCRAY PARK CAMPUS



- Roof area (in blue) – 24210 m^2
- Pavements (in brown) – 5220 m^2
- Assuming 600 mm annual rainfall
- Total runoff volume off roofs and paved areas – 17.6 ML per year
- Assuming a runoff coefficient of 0.8 for losses – 14 ML + available for capture

WATER USAGE FOR IRRIGATING FOOTSCRAY PARK



- Water usage for irrigating FP obtained from Maribyrnong City Council
- Usage over a 10-year period: 241586 KL = 242.6 ML
  - Average of 24.26 ML/ year
- Total cost of water over the 10-year period = $622,168.19

STORMWATER FROM SURROUNDING CATCHMENTS

- Stormwater can be harvested from surrounding catchments

- Two stormwater pipes drain into Maribyrnong River (Melbourne Water and Maribyrnong Council)

Ballarat Rd Catchment Area, University Excluded.

Area	m^2	Ha	Co eff	Weighted value	Yearly rainfall mm	Total ML
Large house block 50 x 15	90000	9	0.7	0.18	550	34.7
Small house block 25 x 12	125875	12.5875	0.8	0.28	550	55.4
Industrial	116125	11.6125	0.5	0.16	550	31.9
Open space	22020	2.202	0.3	0.02	550	3.6
Total	354020	35.402	n/a	0.65	550	126

STORMWATER DIVERSION TREATMENT, STORAGE AND DISTRIBUTION

- Design for stormwater diversion, treatment, storage and distribution developed as part of Final Year Projects of few students
- `
- Various treatment options, including the following:
  - GPTs
  - Filtration systems
  - UV
  - Wetlands

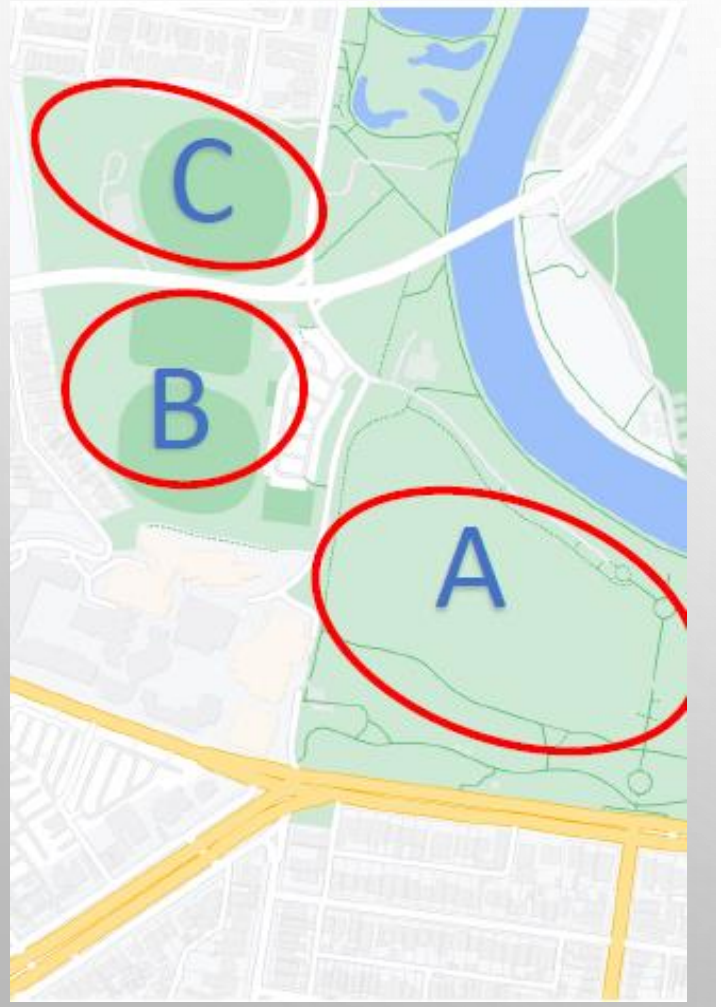
- Storage systems
  - Underground options – Excellent presentation by Stephen Herd
  - Storage basins

STORMWATER DIVERSION TREATMENT, STORAGE AND DISTRIBUTION

- Wetlands and surface storage`

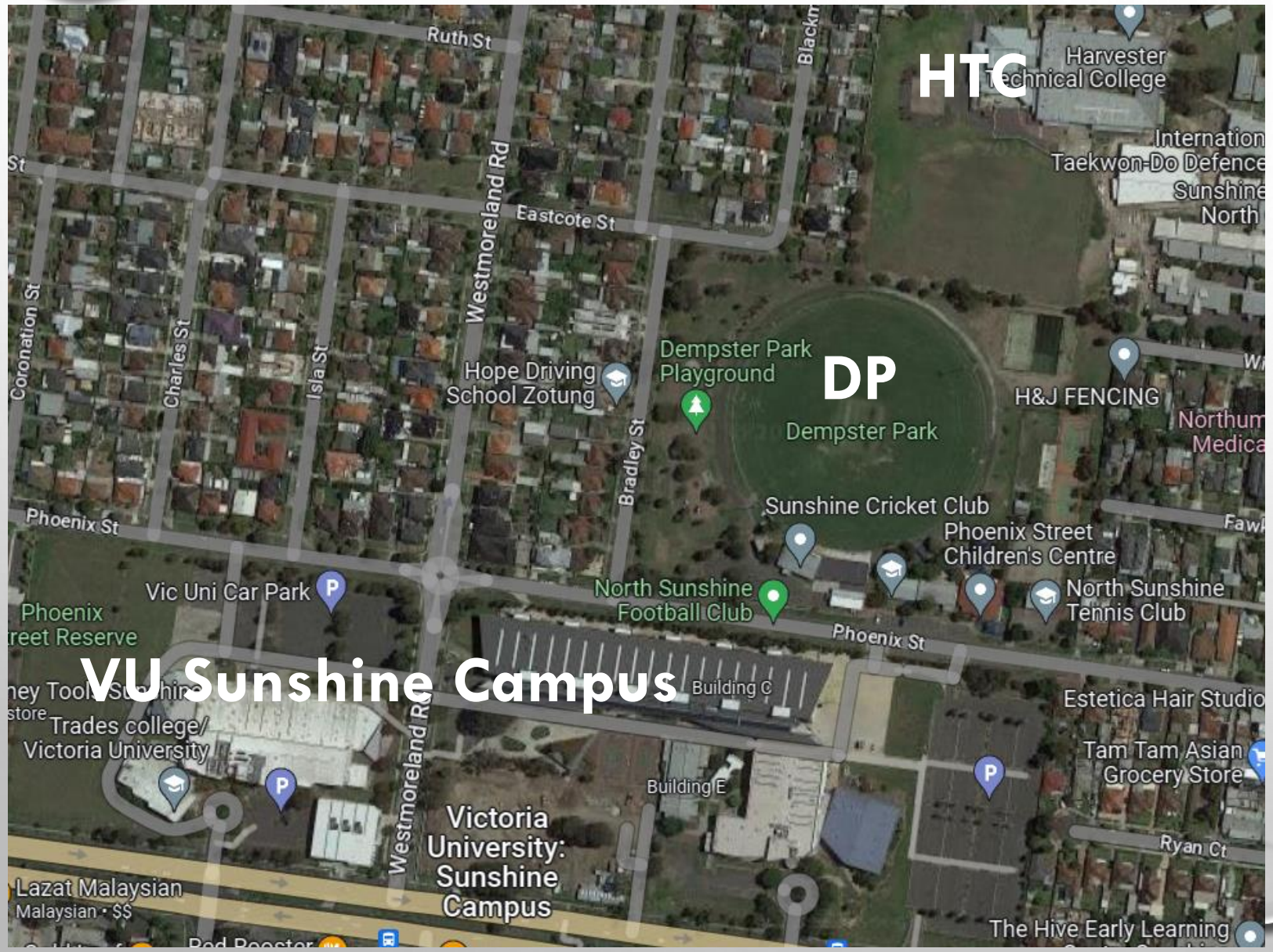
STORMWATER DIVERSION TREATMENT, STORAGE AND DISTRIBUTION

- Irrigation of different parts of the park using pump & sprinkler systems



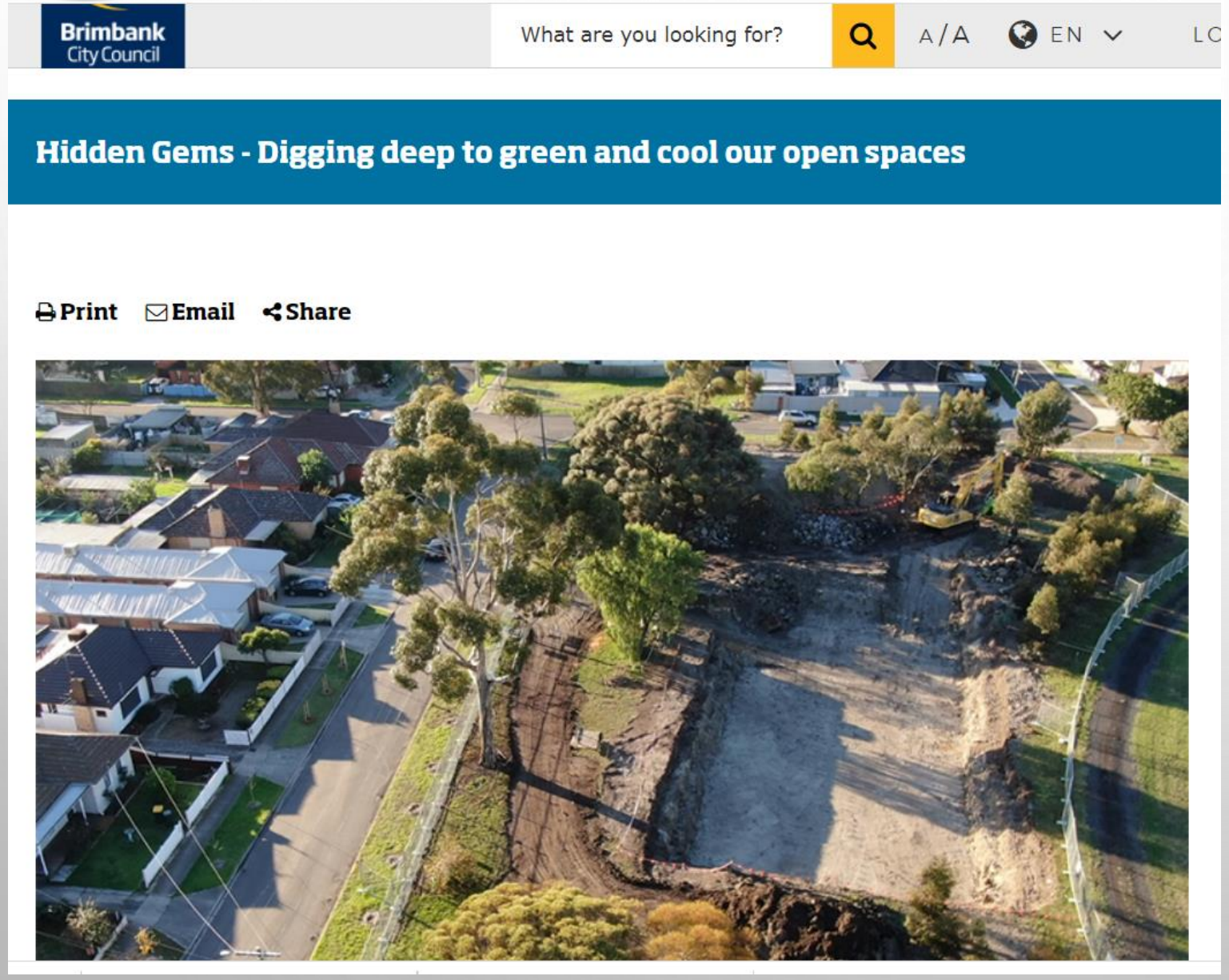
STORMWATER HARVESTING FROM VU'S SUNSHINE CAMPUS

VU'S SUNSHINE CAMPUS



- DP – Dempster Park
- HTC – Harvester Technical College

DEMPSTER PARK SWH SCHEME



- Dempster Park SWH Scheme
- Led by Brimbank City Council (BCC) in partnership with GWW, MW and DELWP (now DEECA)
  - Supported by GWW's Stormwater Partnership funding to BCC
- 1.2 ML underground system supplied by Fränkische

VU'S SUNSHINE CAMPUS

- Recent photographs taken from the red dot

DEMPSTER PARK AND HARVESTER TECH. COLLEGE

- Dempster Park Oval is green and inviting, whereas the College's kickabout area doesn't seem to be so green

PROPOSED SWH FROM VU'S SUNSHINE CAMPUS

- Undertake stormwater harvesting from the Sunshine campus
- Complement the existing Dempster Park SWH Scheme
- Contribute to Brimbank Council's Dempster Park Oases

CONCLUSIONS

- Huge potential for SWH at both VU Campuses
- Footscray Park Campus harvesting system contributes to irrigating the FP, which is of immense value to the new hospital and also to MCC
- Sunshine Campus system complements the Dempster Park SWH Scheme and contributes to BCC's Dempster Park Oases
- Delivering on DEECA's IWM, supporting urban greening/cooling, potable substitution, climate adaptation and encouraging community active/passive recreation supporting community health = liveability

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- Tom Stephanou, Greater Western Water

- Stephen Herd, Frankische

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- At one of our student seminars
- Tom, Darren, Nitin, Kristia with Raashed and Stephen Herd over zoom

Thank You

Questions, comments or inputs