



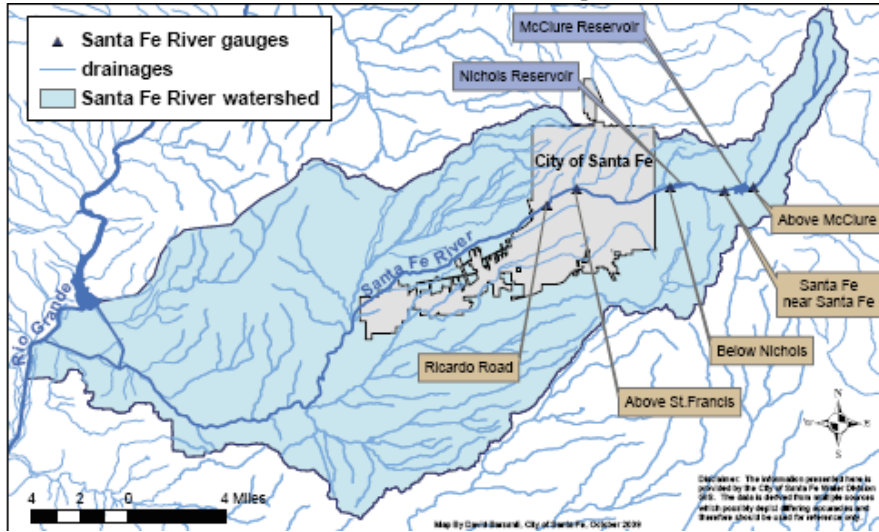
Stormwater Irrigation

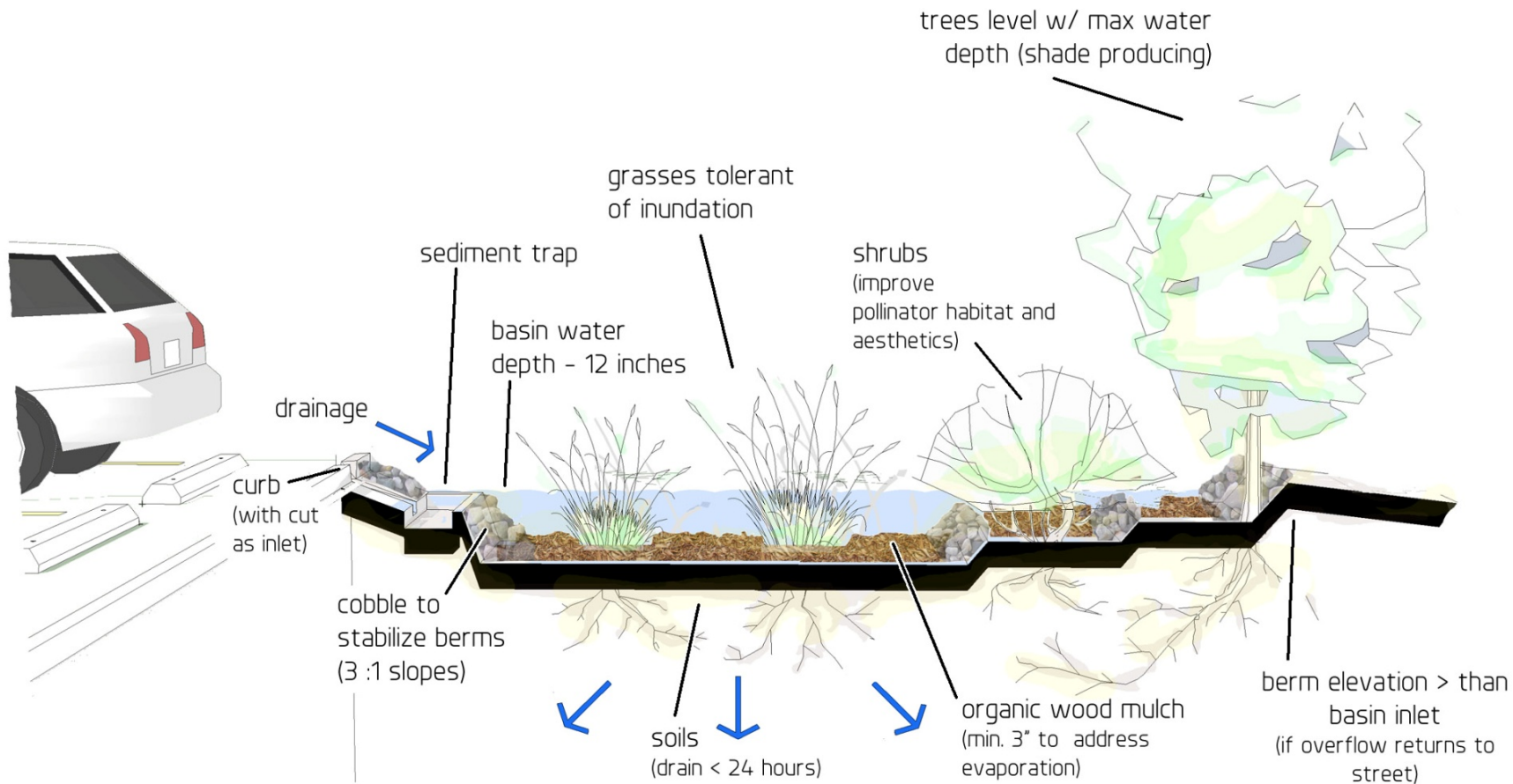
Can rain gardens mitigate flooding caused by urban development?

Prepared for: Border Environment Cooperation Commission

Contact: Aaron Kauffman | aaron@southwesturbanhydrology.com | www.southwesturbanhydrology.com

Urban Development





Basic Basin Design Considerations

diagram by
Paul Navrot
for SUH



Control



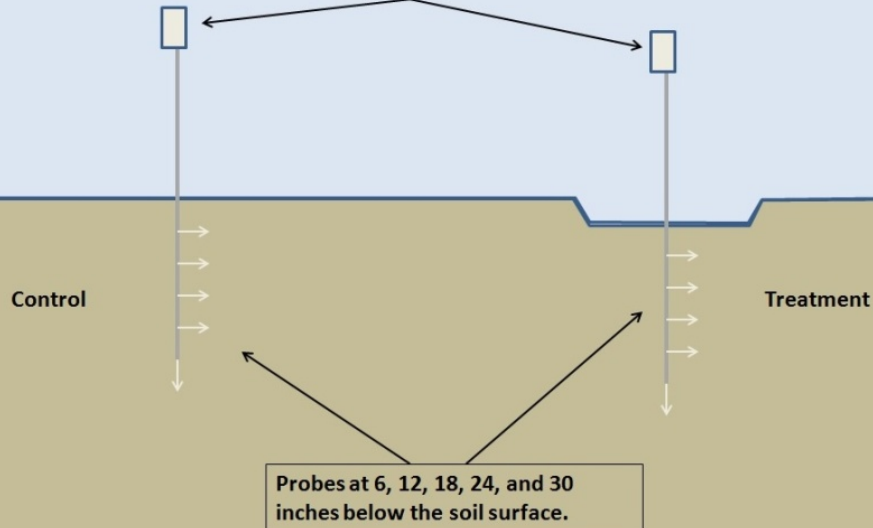
Curb cut **without** a rain garden

Treatment



Curb cut **with** a rain garden

Data loggers record volumetric water content at hourly intervals.

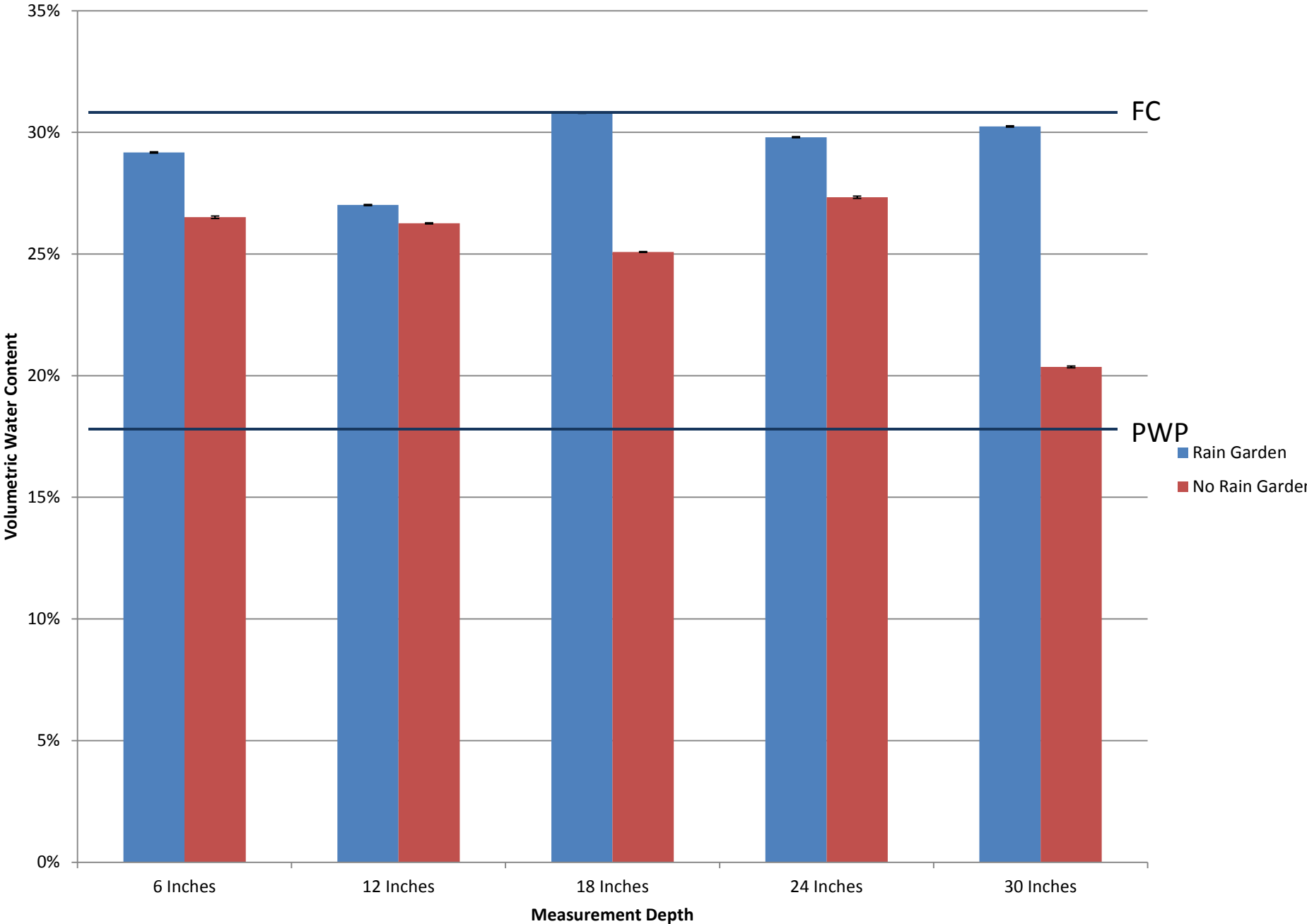


Probes installed at 6, 12, 18, 24, and 30 inches below the soil surface to measure Volumetric Water Content (VWC).

Volumetric Water Content measured hourly for 1 year.



Comparison of VWC by Treatment and Soil Depth

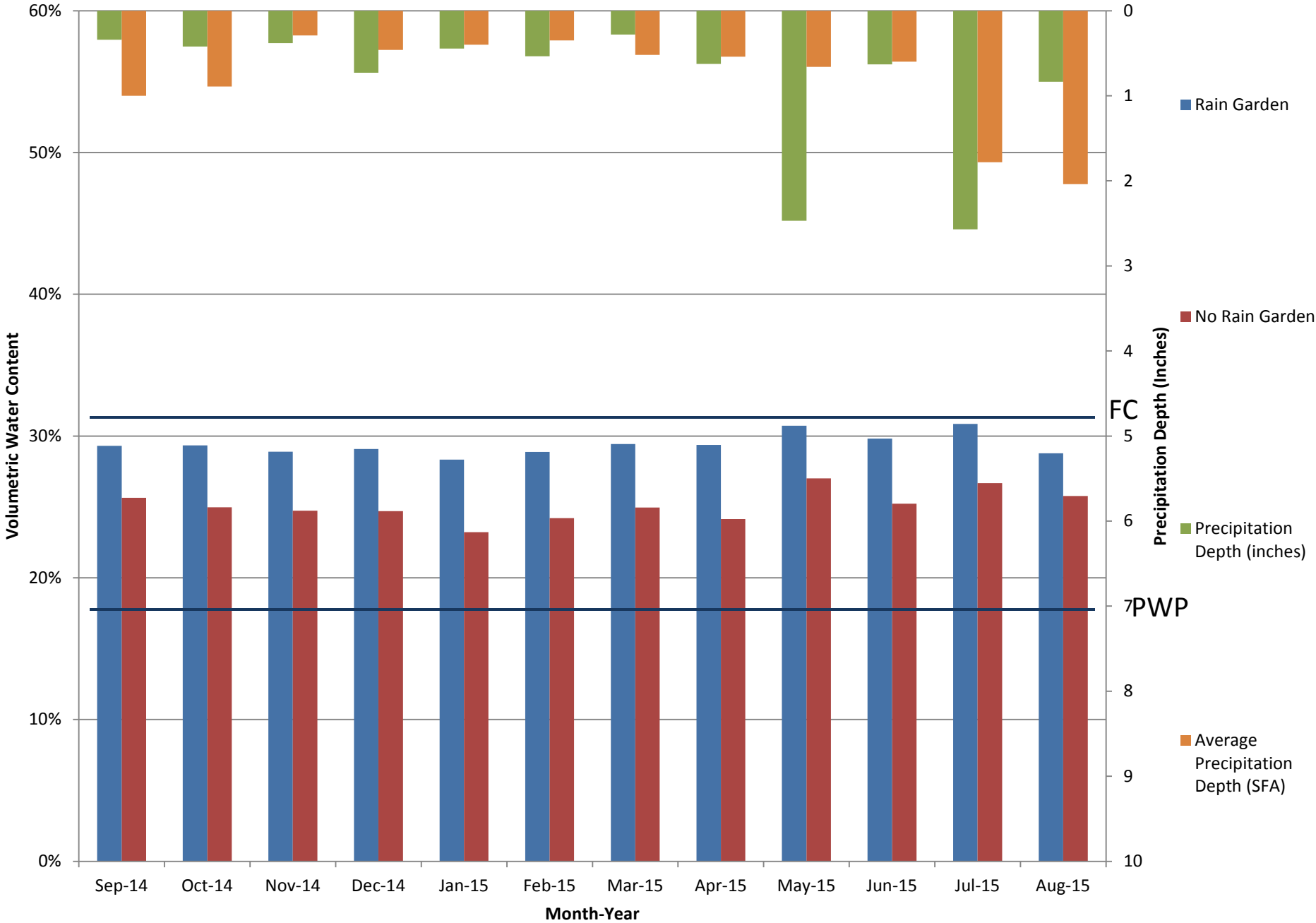


Passive Irrigation Improvements

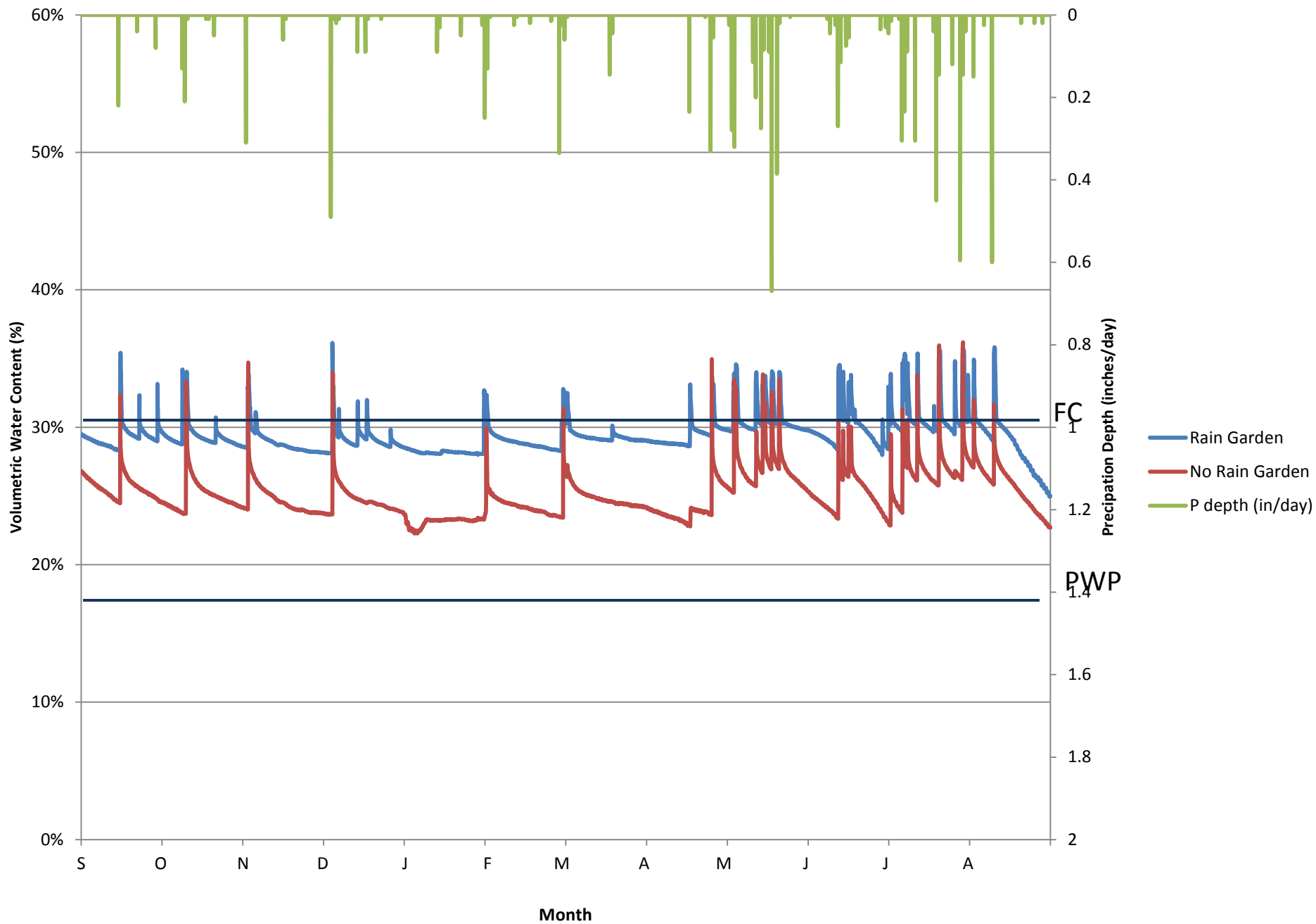
Probe depth	Gallons of water in Soil Profile <u>with</u> a Rain Garden	Gallons of water in Soil Profile <u>without</u> a Rain Garden	Difference in Gallons
6	163.7	148.7	14.9
12	151.5	147.3	4.2
18	172.8	140.7	32.0
24	167.2	153.3	13.8
30	169.7	114.2	55.4
Total	824.8 (2.20g/ft ³)	704.4 (1.88g/ft ³)	120.4 (0.32g/ft ³)

*Soil Profile ~ 375ft³

Monthly Soil Moisture at Curb Cuts with and without Rain Gardens



Average VWC Across 30-inch Soil Profile



Questions?

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