

Working with Nature Green Infrastructure BMPs

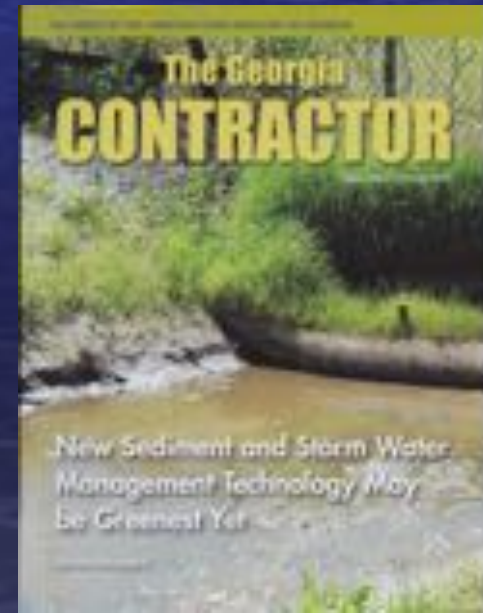
Now w/
Compost!

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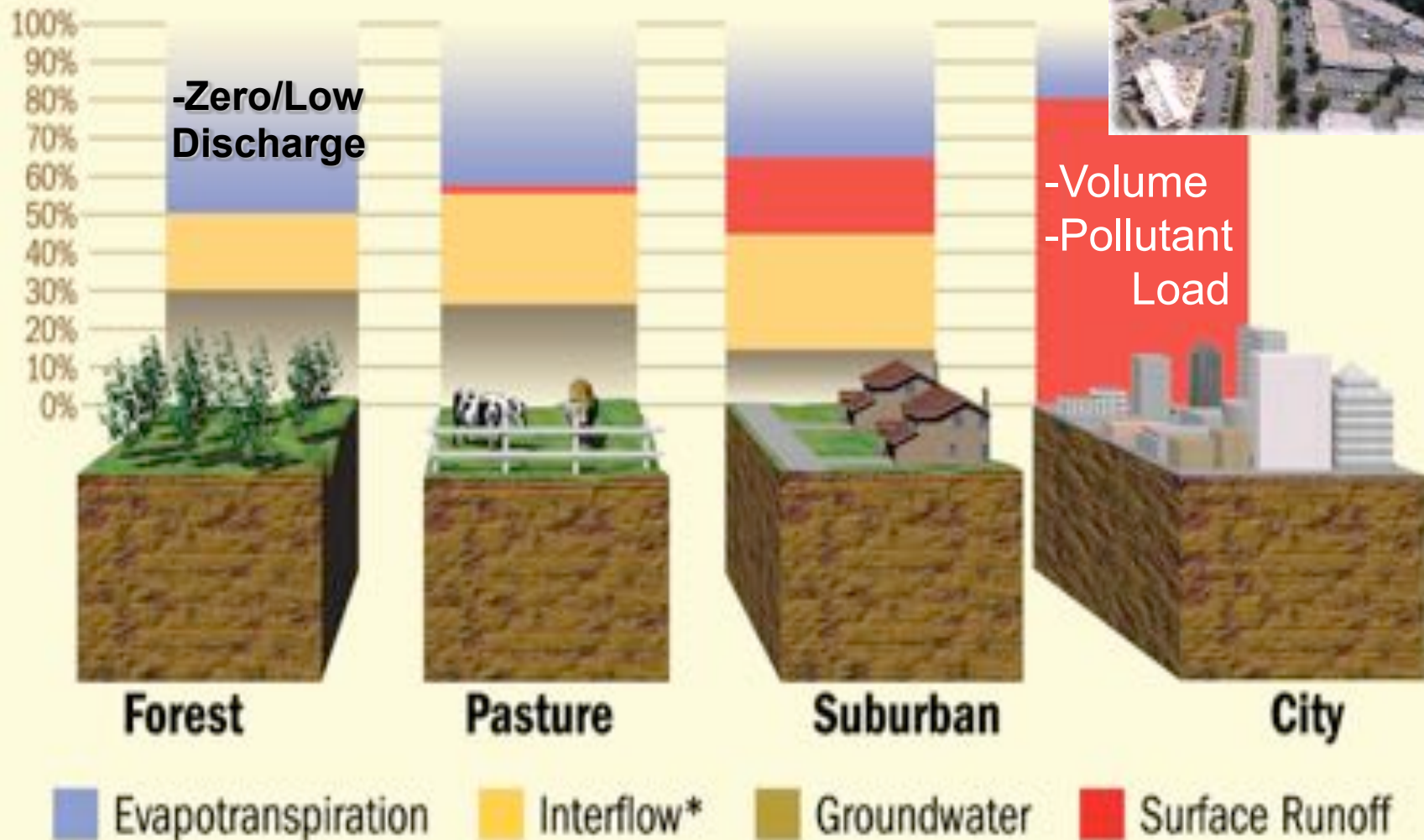


Outline

- Stormwater: Gray → Green Infrastructure
- Compost & Stormwater: Volume + Biofiltration
- Compost BMPs
- Research/Performance
- Case Studies



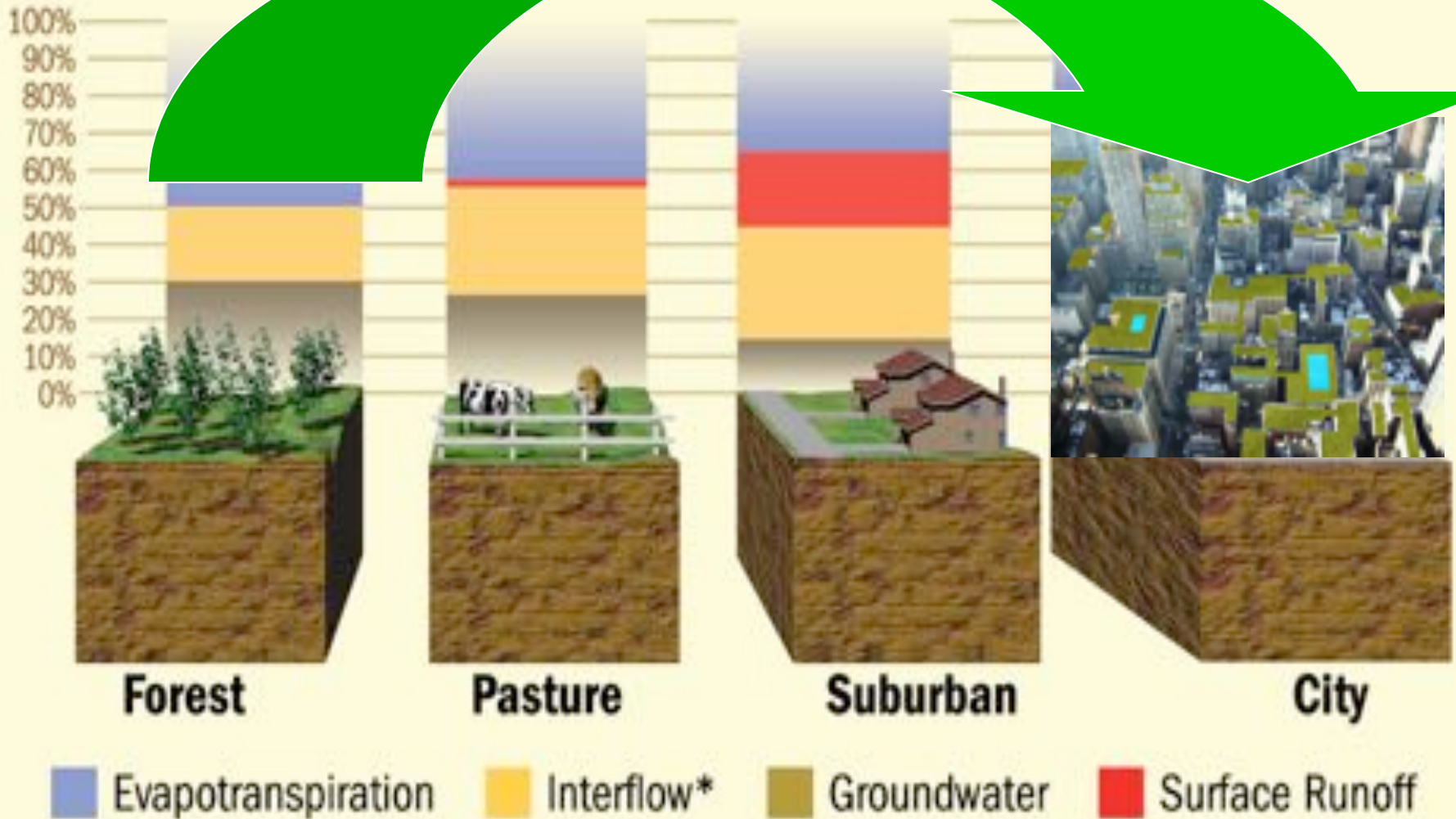
Land Use = Storm Water = Pollutant Load = Water Impairment



Source: Sejo Jackson, 2001

*water that travels just below the surface

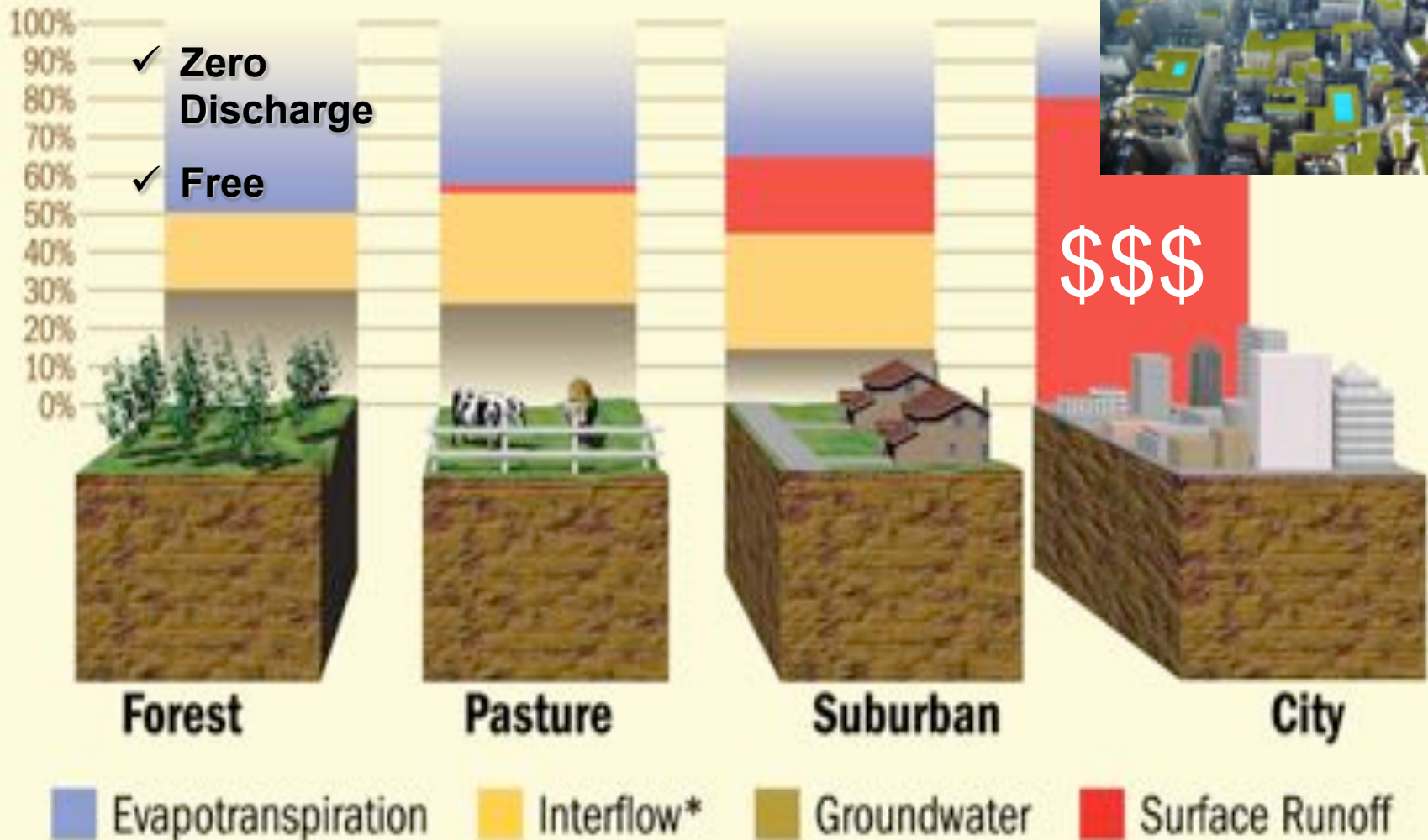
What is Green Infrastructure?



Source: Sejo Jackson, 2001

*water that travels just below the surface

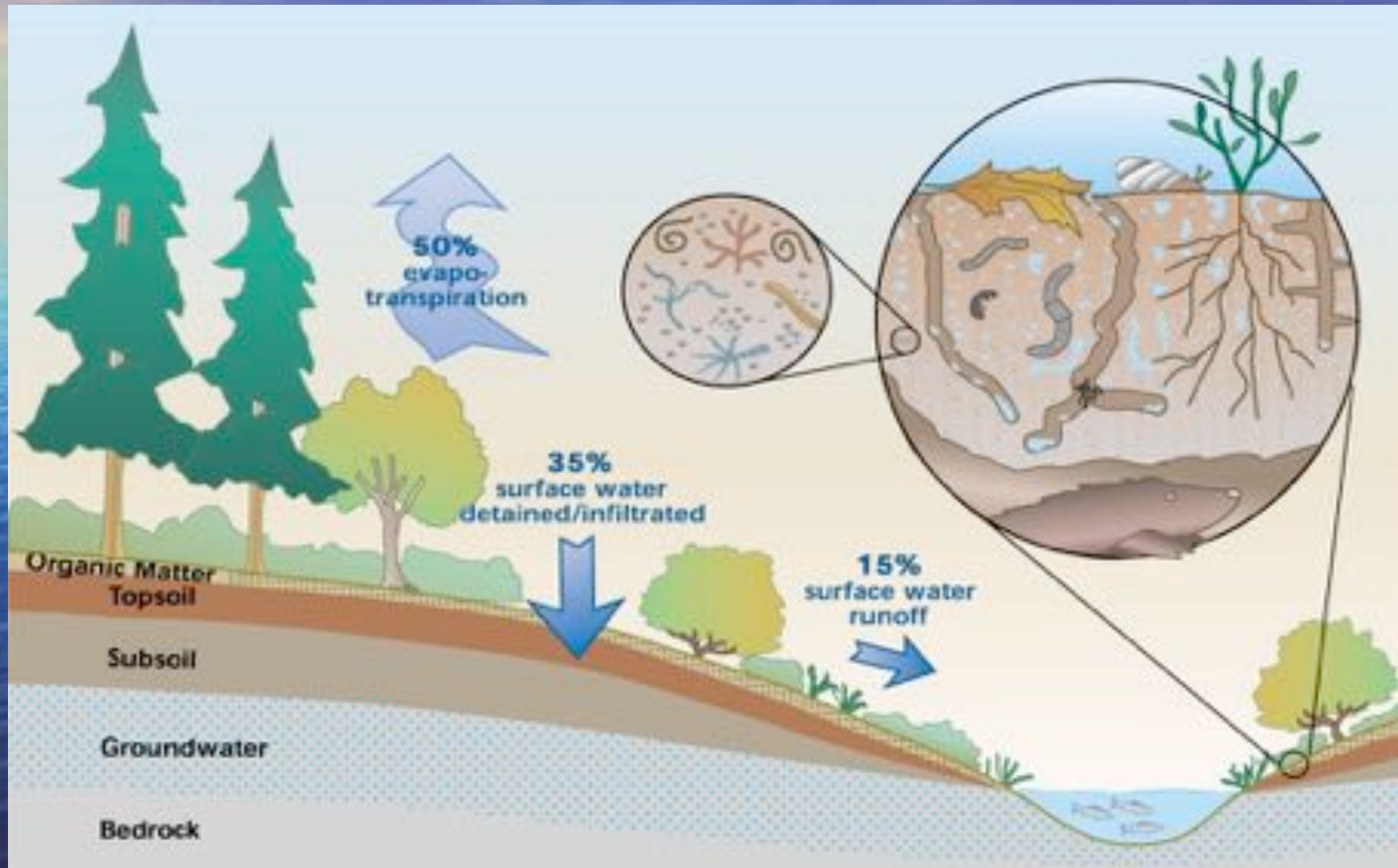
Ecosystem Services (for free!)



Source: Sege Jackson, 2001

*water that travels just below the surface

Natural Stormwater Management



Compost-Based SWM BMPs

Erosion & Sediment Control

1. Perimeter Control
2. Inlet Protection
3. Ditch Check
4. Filter Ring/Concrete Washout
5. Slope Interruption
6. Runoff Diversion
7. Vegetated Cover
8. Erosion Control Blanket
9. Vegetated Sediment Trap
10. Pond Riser Pipe Filter

Low Impact Development

11. Runoff Control Blanket
12. Vegetated Filter Strip
13. Engineered Soil
14. Channel Liner
15. Streambank Stabilization
16. Biofiltration System
17. Bioretention System
18. Green Roof System
19. Living Wall
20. Green Retaining Wall
21. Vegetated Rip Rap
22. Level Spreader
23. Green Gabion
24. Bioswale

Compost Tools

Filter Media



Designed for Optimum
Filtration & Hydraulic-flow

EC/Grow Media



Designed for Optimum
Water Absorption &
Plant Growth

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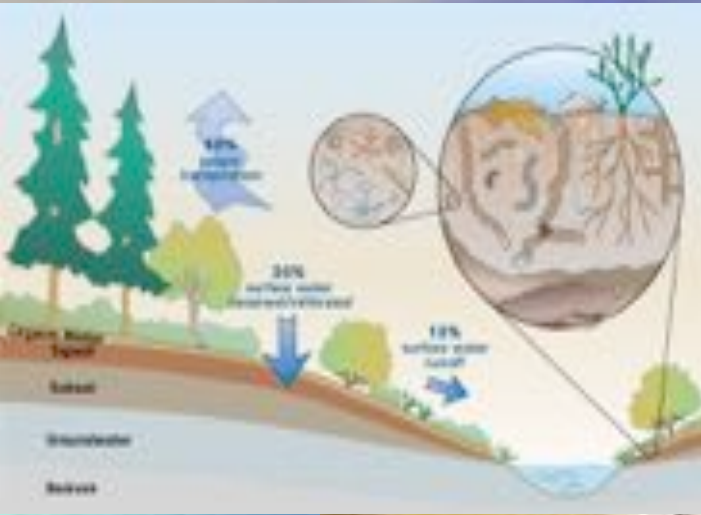


Designed for Optimum
Water Absorption &
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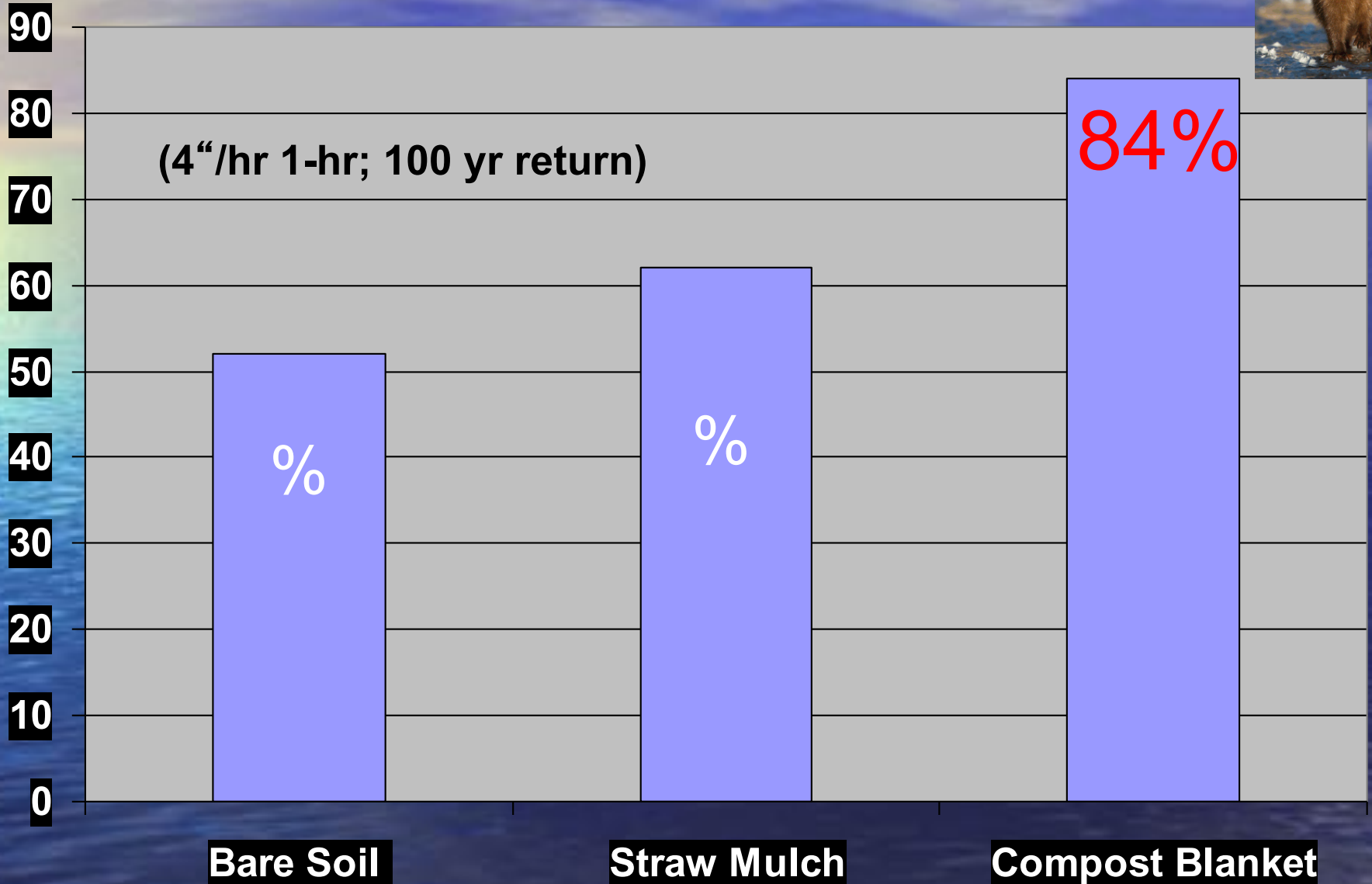
10.30.2001

Runoff + Erosion Control



Designed to: 1) dissipate energy of rain impact; 2) hold, infiltrate & evaporate water; 3) slow down/disperse energy of sheet flow; 4) provide for optimum vegetation growth

Rainfall Absorption



Bare Soil

Straw Mulch

Compost Blanket

(Faucette, J Governo, Jordan, Lockaby, Carino, R Governo, 2007)

Runoff Volume Reduction

Reduction	Influencing Factors	Reference
49%	Sandy clay loam, 10% slope, 1.5" blanket, 3.2 in/hr – 1 hr rain	Faucette et al, 2005
60%	Sandy clay loam, 10% slope, 1.5" blanket, 4.0 in/hr – 1 hr rain	Faucette et al, 2007
76%	Silty sand, 2:1 slope, 3" blanket, 1.8 in/hr - 2.4 hr rain	Demars et al, 2000
90%	Loamy sand, 3:1 slope, 2" blanket, 4.0 in/hr – 2 hr rain	Persyn et al, 2004

Note: 1 in = 2.5 cm

Pollutant Load Reduction:

Compost Blanket vs Conventional Seeding



	Total N	Nitrate N	Total P	Soluble P	Total Sediment
Mukhtar et al, 2004 (seed+fertilizer)	88%	45%	87%	87%	99%
Faucette et al, 2007 (seed+fertilizer)	92%	ND	ND	97%	94%
Faucette et al, 2005 (hydromulch)	58%	98%	83%	83%	80%
Persyn et al 2004 (seed+topsoil)	99%	ND	99%	99%	96%

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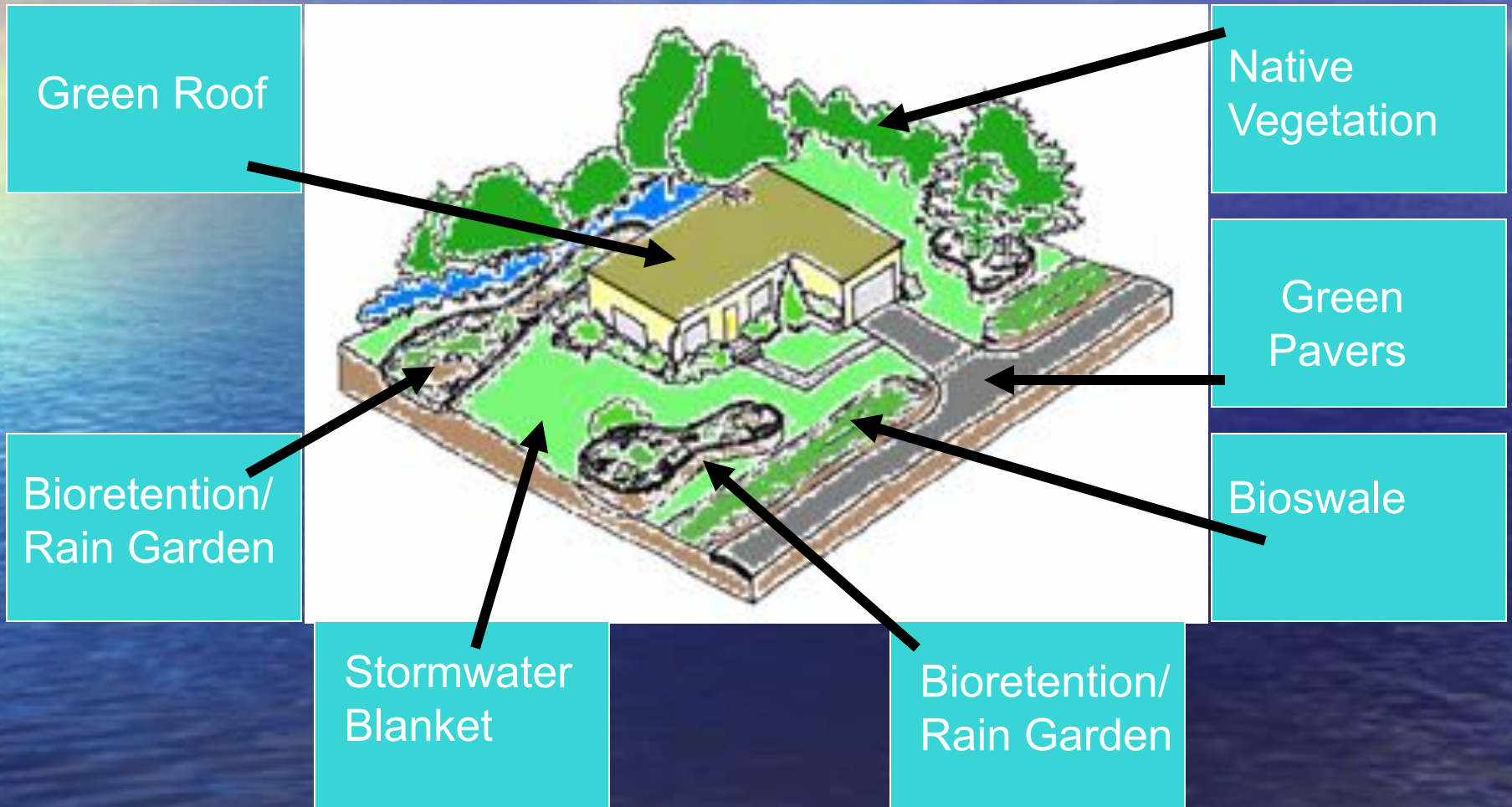
Storm Water Pollutant Removal



	TSS	Turbidity	Total N	NH4 -N	NO3 -N	Total P	Total coli.	E. coli.	Metals	Oil	Diesel
Filter Sock	80 %	63 %	35 %	35 %	25 %	60 %	98 %	98 %	37-78 %	99 %	99 %



Green Infrastructure Site = Low/Zero Discharge

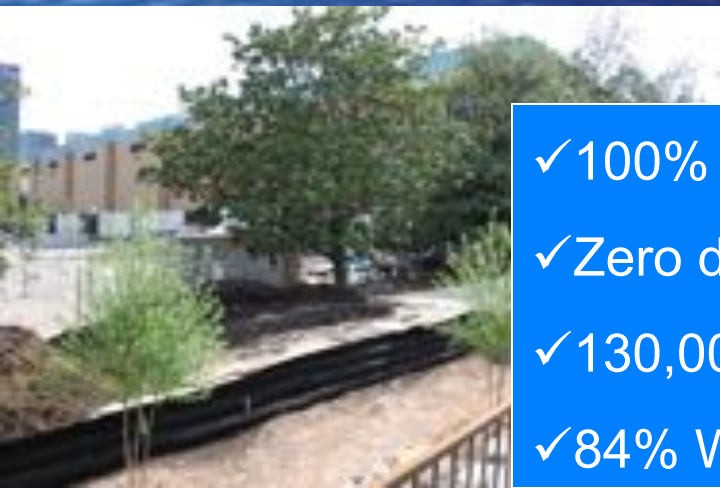




 **Southface**

Responsible Solutions for Environmental Living

Eco Office
Grand Opening
August 18, 2009



- ✓ 100% rain/stormwater capture
- ✓ Zero discharge
- ✓ 130,000 gal/yr
- ✓ 84% Water Savings





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Responsible Solutions for Environmental Living



Thank You!

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