



Managing Stormwater with Rain Gardens & Other Tools



Mason Conservation District

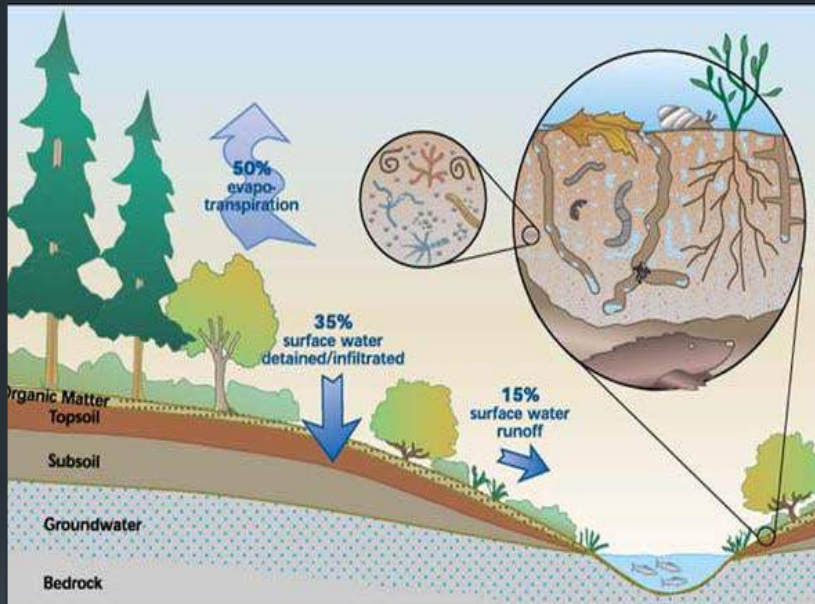
Karin Strelhoff, MLA



Linda Andrews design, Olympia

Is this a garden or is it stormwater “infrastructure?”
Stormwater creates a great opportunity for plant
lovers!

Why does stormwater matter?



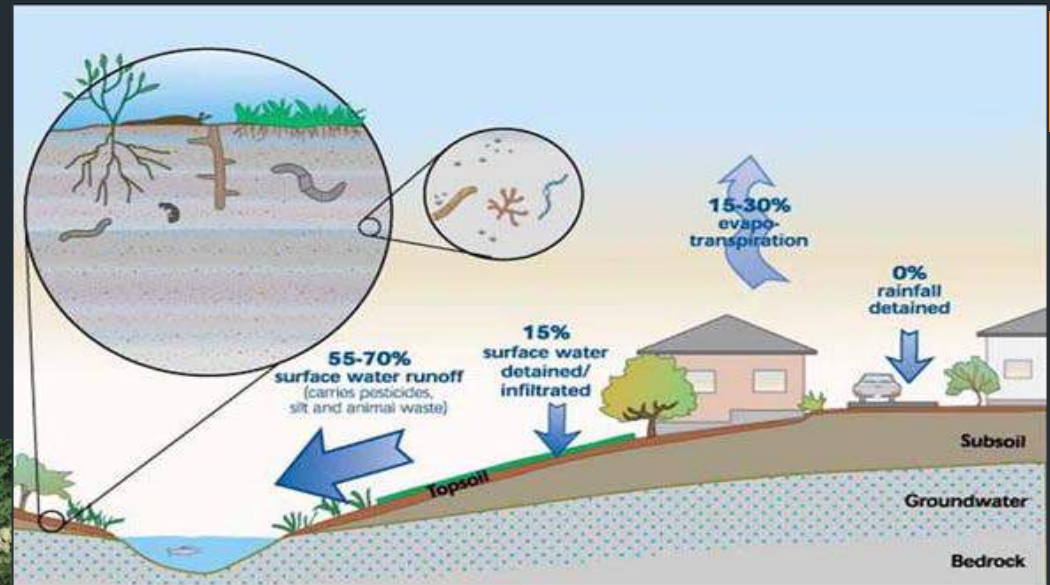
www.compostwashington.org

"Soils for Salmon"



Image: Washington State Department of Ecology

PART of the story:
development patterns
create more “hard”
surfaces



= more
runoff

PART of the story: natural topographic and geologic conditions shape water drainage patterns, the presence of springs/seeps, and infiltration opportunities + challenges.



Image: www.1.bp.blogspot.com

Gardeners
understand
that every
site is
unique



- ➡ Because sites vary, there is no “one-size-fits-all” approach for stormwater management.
- ➡ Rain Gardens are a great tool - for the right location.

We will explore 3 basic strategies for handling all 65” of rain that we typically receive each year:

CAPTURE - COLLECT - DISPERSE



CAPTURE – HOLD - DISPERSE

Rain Gardens “CAPTURE” water

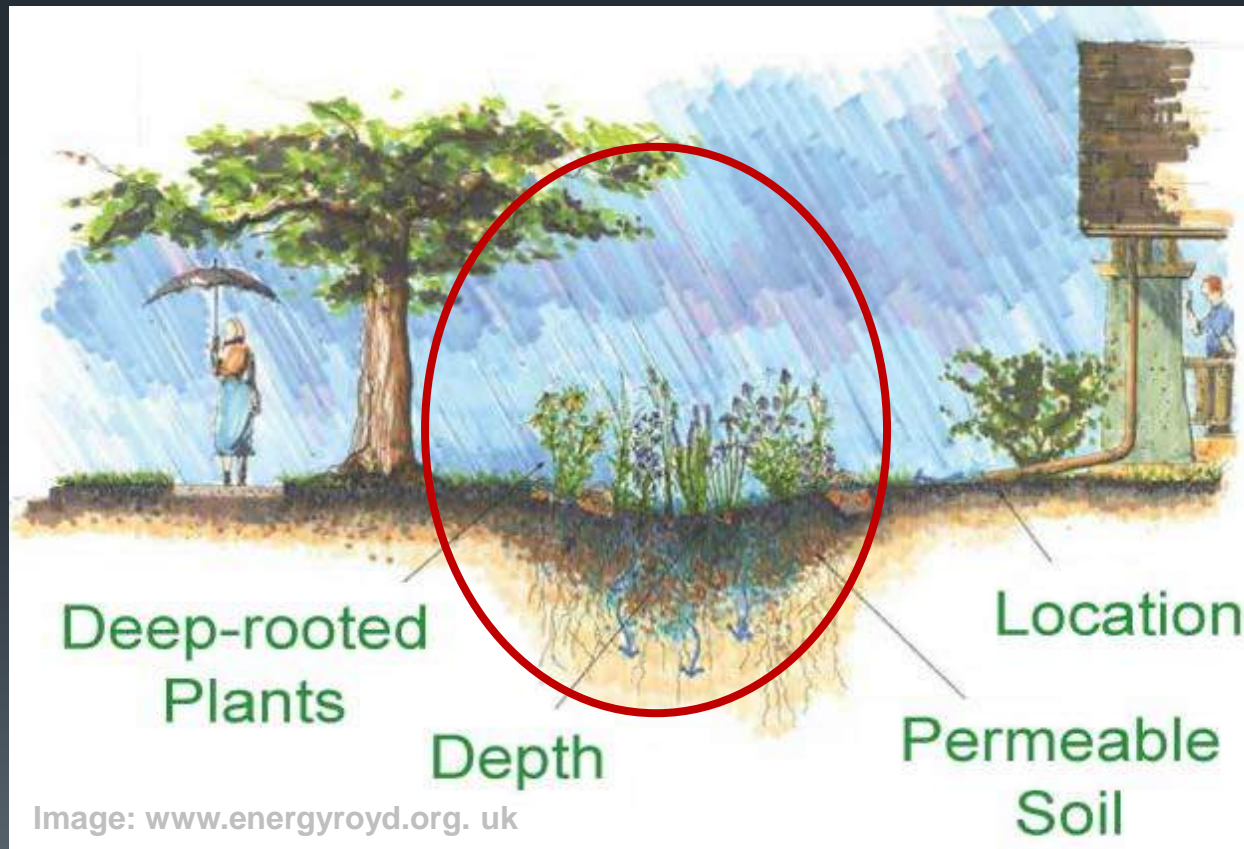


And SOAK it slowly into the soil...

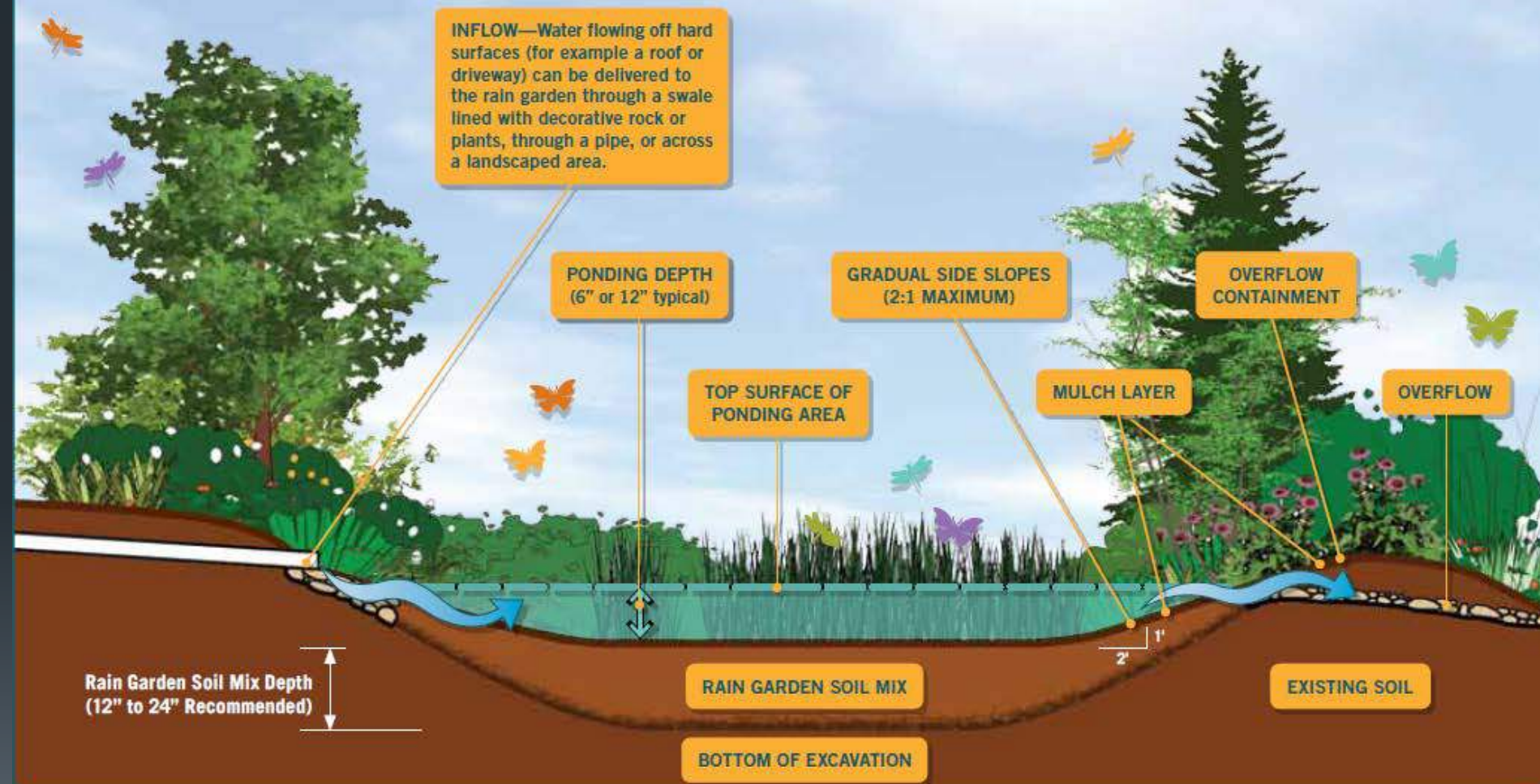
RAIN GARDENS – how do they work?

Like forests, they soak water into the ground.

A special soil mix – sand and compost – acts like a sponge. It drains quickly but also holds water to support plant growth.

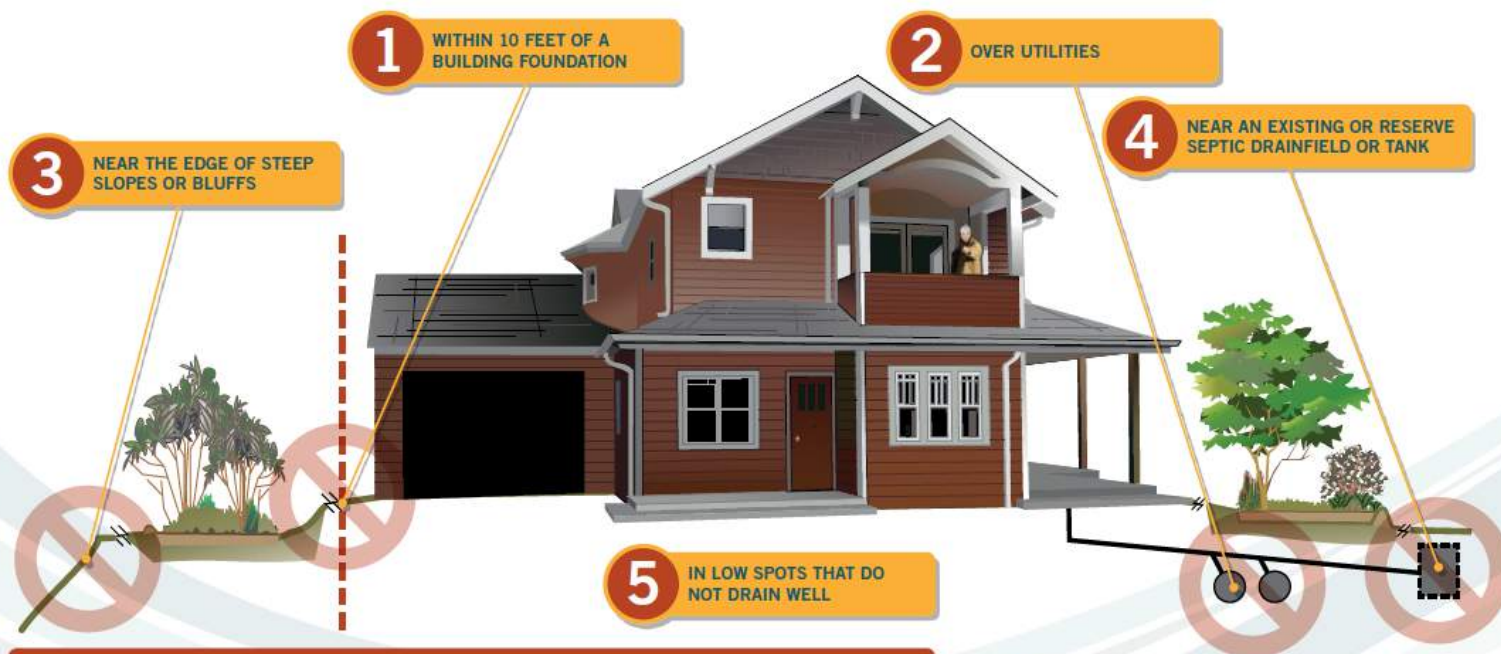


The parts of a Rain Garden:



WHERE do you put your rain garden?

Where NOT to Locate a Rain Garden



Local and State Requirements Alert



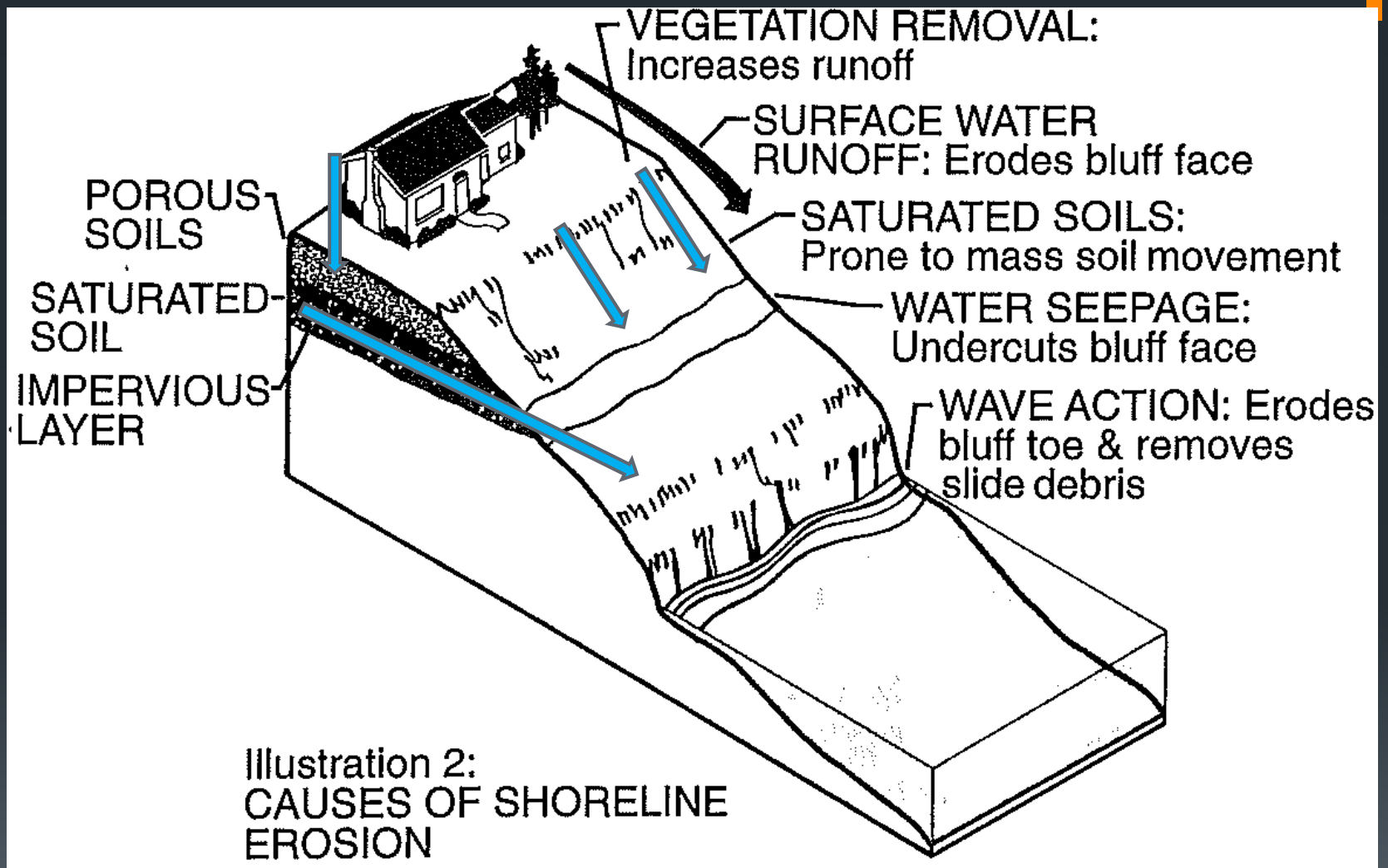
If your rain garden project is used to control stormwater flow under Minimum Requirements 1-5 of the Washington State Department of Ecology Stormwater Management Manual for Western Washington, refer to Appendix C for location restrictions, discussed in part in the "infeasibility" criteria. These requirements apply to projects that create 2,000 to 5,000 square feet of new or replaced hard surfaces or that disturb between 7,000 and 33,000 or more square feet of land. Also, be sure to check with your local municipality to see if they have specific location and feasibility requirements.

6 IN AREAS THAT WOULD REQUIRE DISTURBING HEALTHY NATIVE SOILS AND VEGETATION

7 WHERE THERE IS HIGH GROUNDWATER DURING THE WINTER

8 NEAR WELLS—STAY BACK 100 FEET FROM DRINKING WATER WELLS

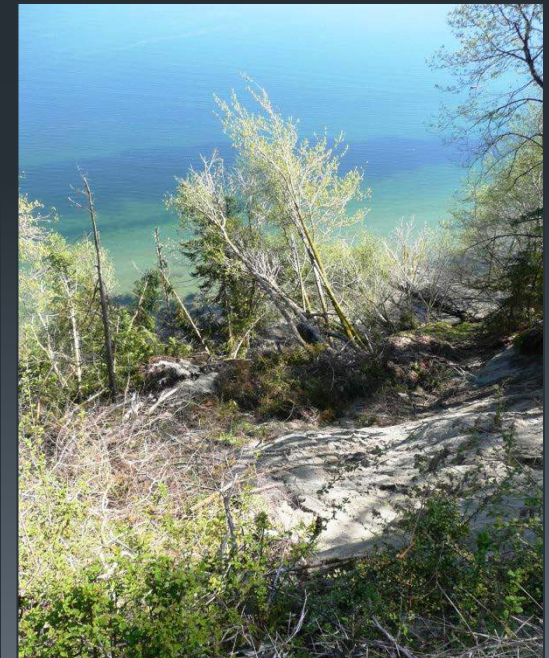
BLUFFS + SLOPES → No Rain Gardens



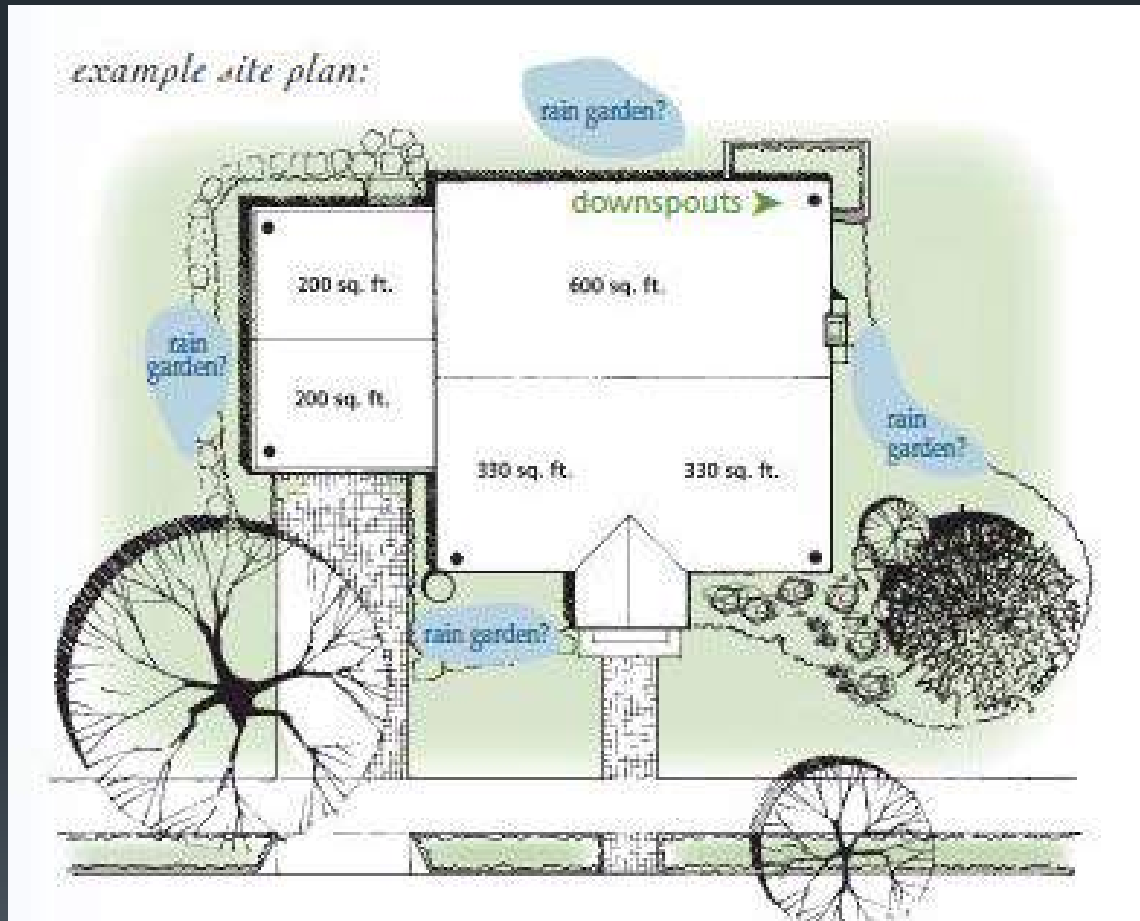
Limited vegetation + excess water = soil erosion + instability

TIPS: SLOPE MANAGEMENT

- Keep slopes well planted
- Manage stormwater above slopes
- Understand and monitor your site.
- Prune trees for views – only remove hazard trees.
- Hire a professional to assess hazard trees before removal.
- International Society of Arboriculture



Location, Location, Location



- Good soils (1/4"-1/2" per hour)
- Topography helps
- Overflow site
- Enough space
- Enhances your home!

HOW do you build them?



Technical help from MCD / WSU manual

You found the spot – now the fun begins!



















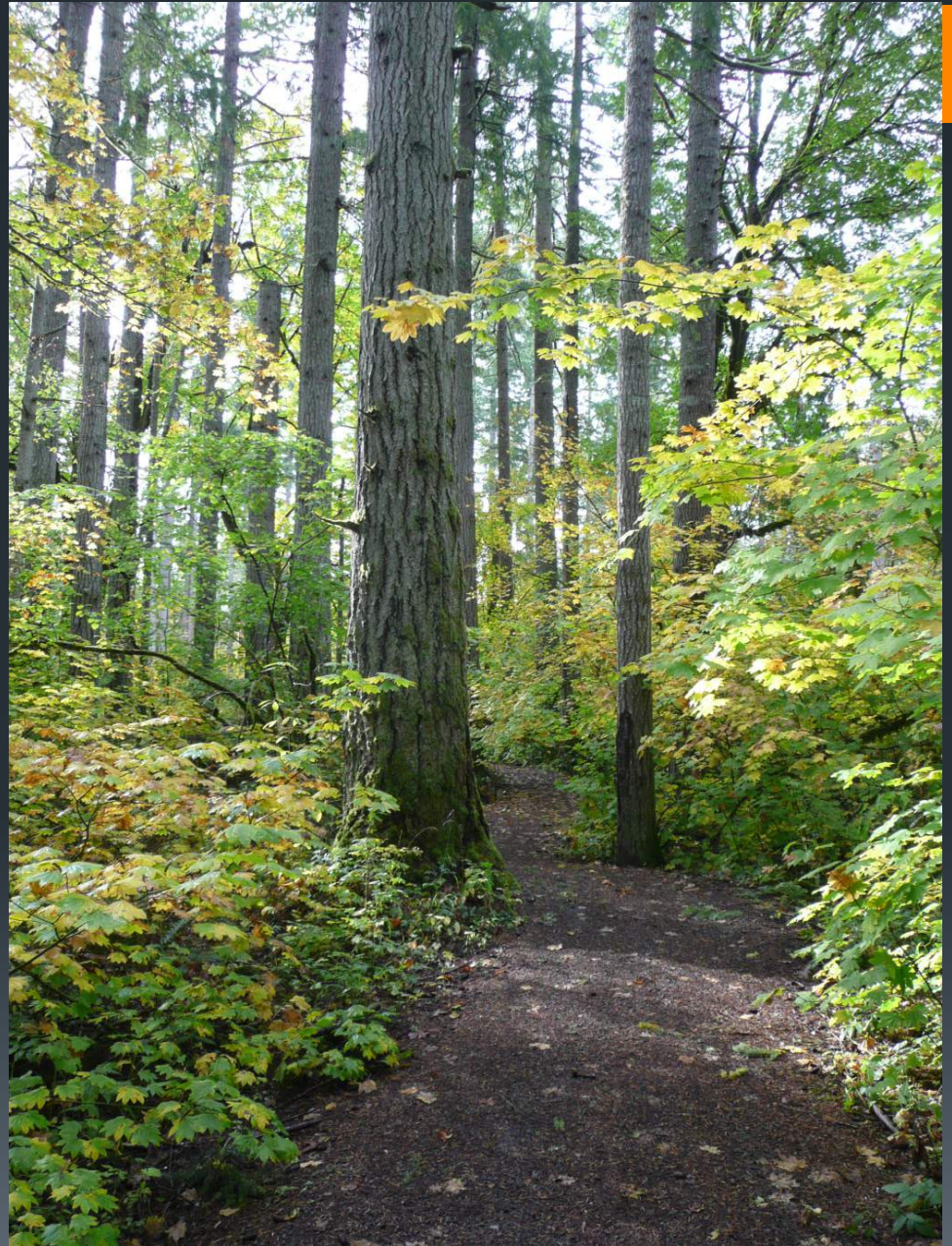


Rain Dog Designs

RECAP: A successful rain garden...

- Has soil that drains quickly ($> \frac{1}{2}$ " / hour is ideal, $> \frac{1}{4}$ " / hour is ok).
- Is designed to manage a specific source and specific amount of water.
- Is located in a good place – that's not as simple as it seems.
- Has an overflow path for the longest, largest storms.
- Is manageable for you – the right size, right plants, right "aesthetic"
- Is an asset for your home and property!

You can also...
“CAPTURE”
the rain before it
reaches the
ground



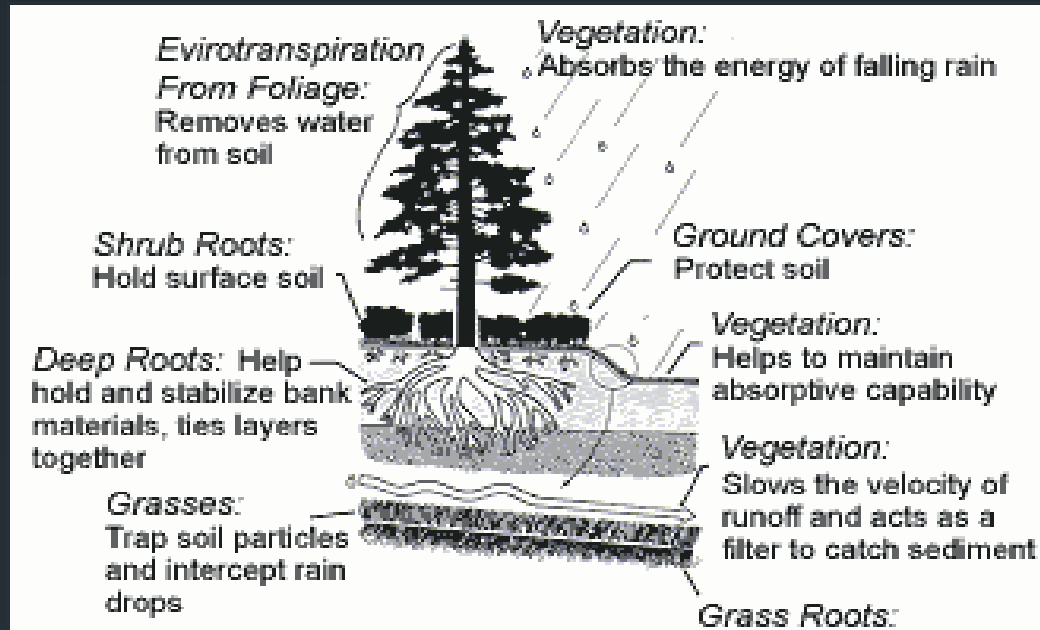
EASY OPTION: TREES



Image: UBC Botanical Garden

Trees are one of the best (but also the least appreciated) of stormwater tools.

“CAPTURE” THE RAIN



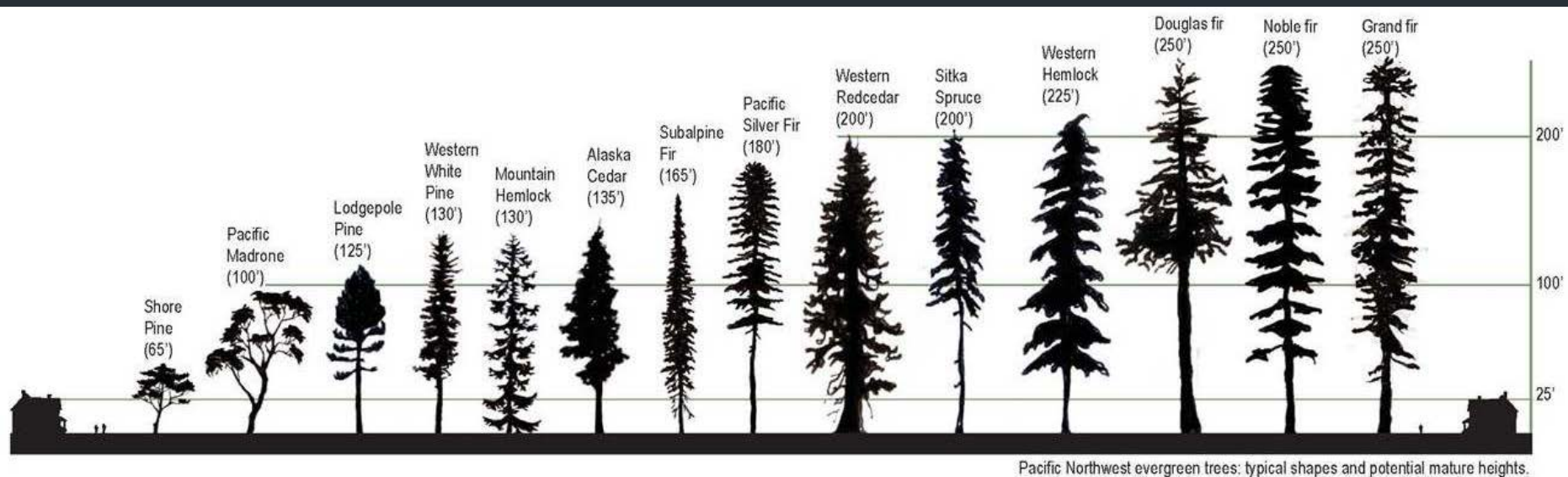
- Rain is captured on leaf surfaces at different heights.
- Leaves transpire and water evaporates away.
- Rain slows as it drips through vegetation to the ground, allowing the soil time to absorb it.
- Plant roots suck up gallons of water from the soil and make room for more water.

TREES CAPTURE RAIN

TIP: Keep lots of trees and shrubs on your property.

A PNW conifer intercepts and transpires as much as 30% of the rain that falls on it each year.

(Herrera Environmental Consultants, 2008)



Evergreen species work best for stormwater management.



TIP: Hire a professional arborist to prune for views rather than removing a tree. Don't "TOP" your trees.

EASY OPTION: “LAYERED GARDENS”



TIP: Plant in “layers” of groundcovers, shrubs & trees.



TIP: don't forget wood chip mulch for any bare soil.

EASY OPTION: “RECONSIDER LAWN”



... grass is better than concrete at handling stormwater, but shrubs and trees are far better than lawn ...

How much do you love to mow?

Limit lawn to areas you need!



Find your middle ground:

small lawns and layered garden areas are an attractive, simple method to reduce stormwater runoff at home.



OPTION: BOG GARDENS

Seasonal wet areas help to recharge groundwater and filter runoff. They can provide homes for amphibians and food for birds. Integrate them into your garden design where appropriate.



EASY OPTION: PLANTERS ON HARD SURFACES



RAISED GARDEN BEDS for food or flowers



Image: begarden.blogspot.com

“CAPTURE” THE RAIN . . .

AMBITIOUS OPTION: GREEN ROOF





Remember to start small + fun - or hire a professional!



CAPTURE - HOLD - DISPERSE

You can also: “HOLD” THE RAIN

Where possible, direct downspouts into collection points & reuse rainwater later for irrigation.

$\frac{1}{4}$ " of rain falling on a 1,400 SF roof will generate over 200 gallons of runoff in a brief storm!



EASY OPTION: RAIN BARREL

- Temporarily store *some* rainwater during the peak of a storm.
- Need an “overflow” destination.
- Need to empty the barrel between storms.
- Link together multi-barrel systems to capture more rainwater.
- Not for drinking.
- Don't irrigate veggies (if you have a composite roof).



“COLLECT” THE RAIN: STORMWATER PLANTER

Inlet Pipe

Overflow
Pipe



Image: cleanriverscampaign.wordpress.com

STORMWATER PLANTERS



Image: janeswrite.com

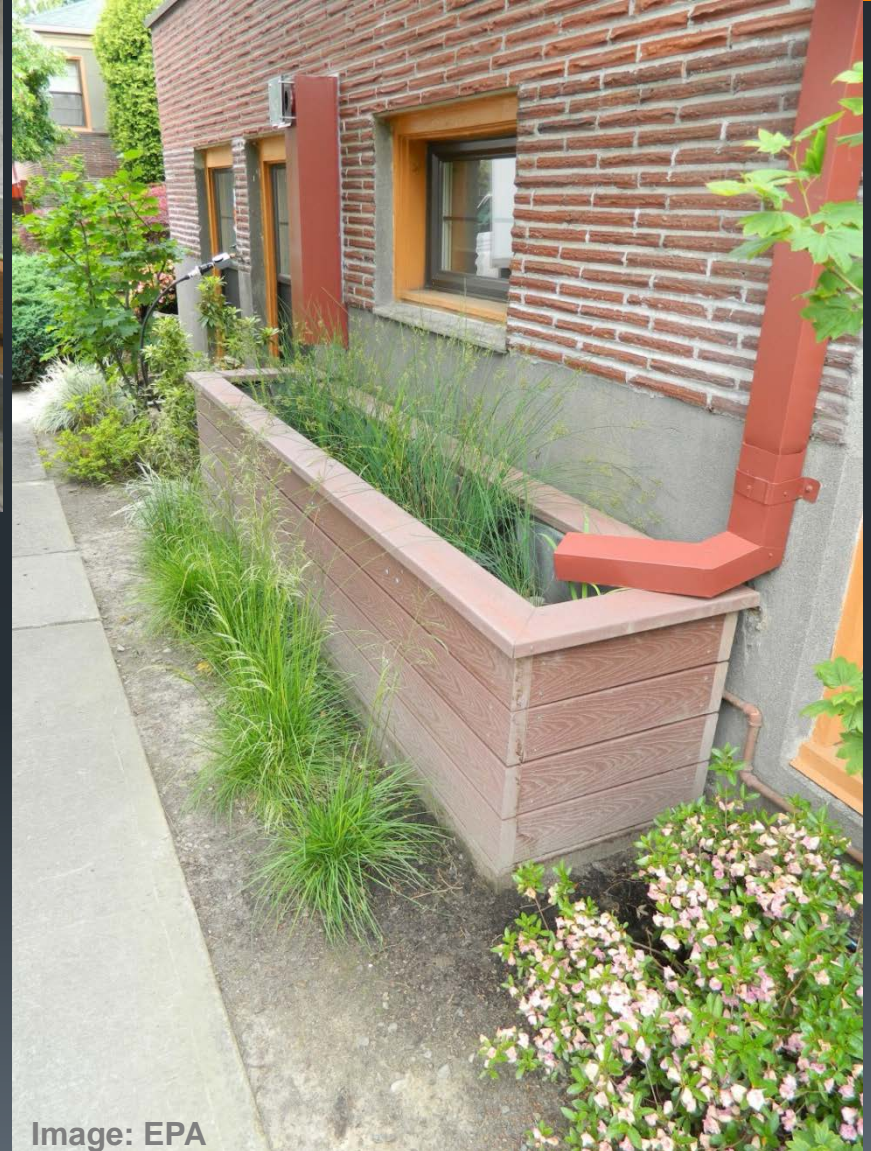


Image: EPA

AMBITIOUS OPTION: CISTERNS



- Hire a professional designer.
- You can store a lot of roof runoff in very large systems (often buried).
- Can integrate water treatment for potable water.

CAPTURE- HOLD - DISPERSE

“DISPERSE” THE RAIN

Where possible, direct stormwater to sites where water can safely flow over or soak into the ground. Use rocks or vegetation to slow the flow and help to filter the water as you direct it to a well-vegetated area...

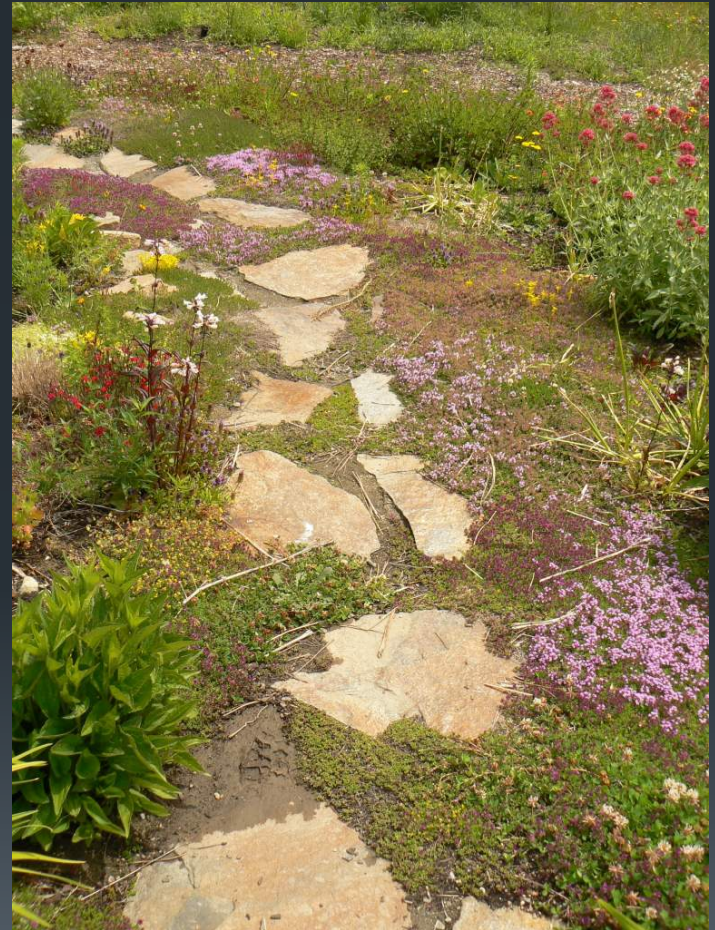


Or . . DISPERSE through a surface



TIP: Remove or replace HARD (Impervious) surfaces that create stormwater runoff.

OPTION: MINIMIZE IMPERVIOUS AREAS



“PERVIOUS” PAVING OPTIONS

. . . for parking areas, driveways, walkways, patios . . .



Remember your 3 options:



CAPTURE - COLLECT - DISPERSE

Remember to have fun!



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Mason Conservation District