

Landscape Design Without Starting Over Workbook

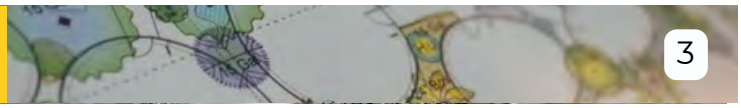
Valley Water

CLIMATE READY
LANDSCAPE ACADEMY

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- Topography

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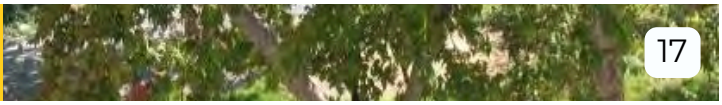
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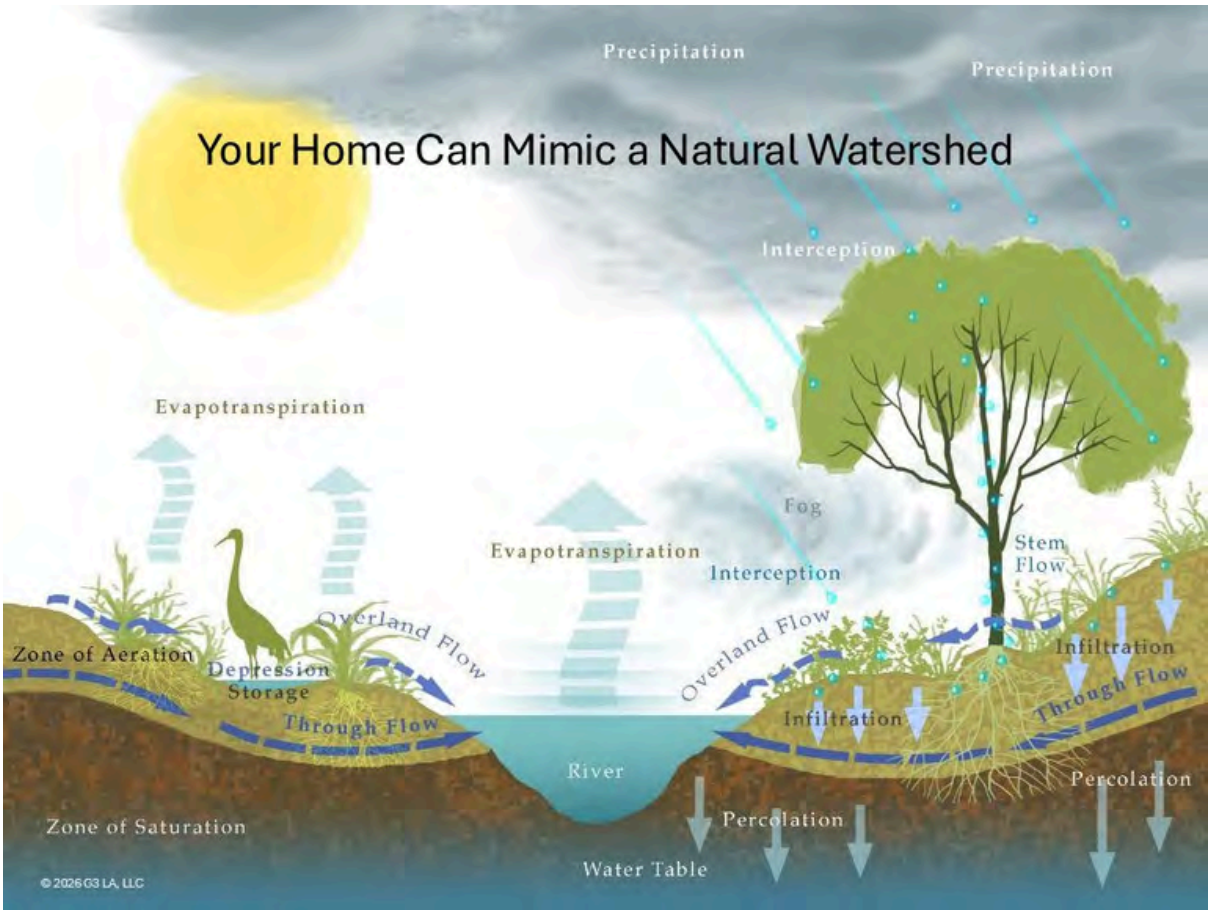
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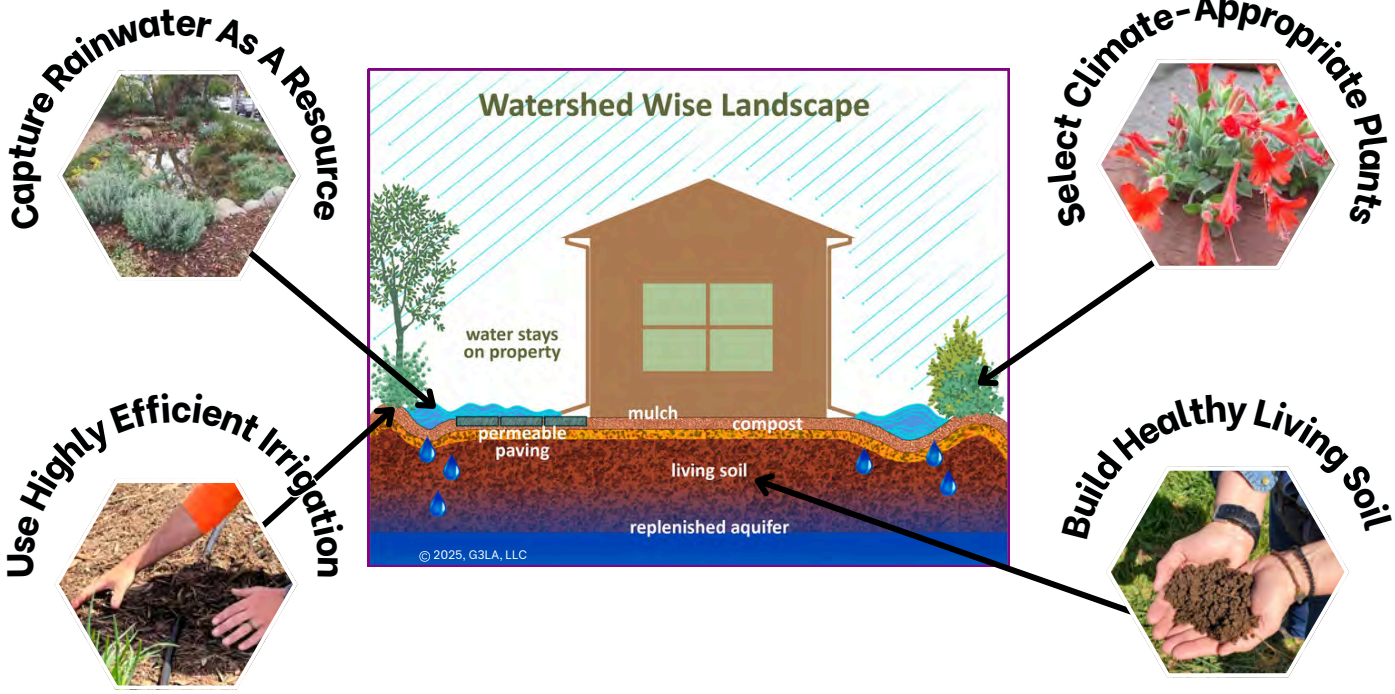


- Picking the Palette Like a Pro
- Tips for a Beautiful Garden
- Hydrozoning and Irrigation Tips
- Laying Out the Planting Plan

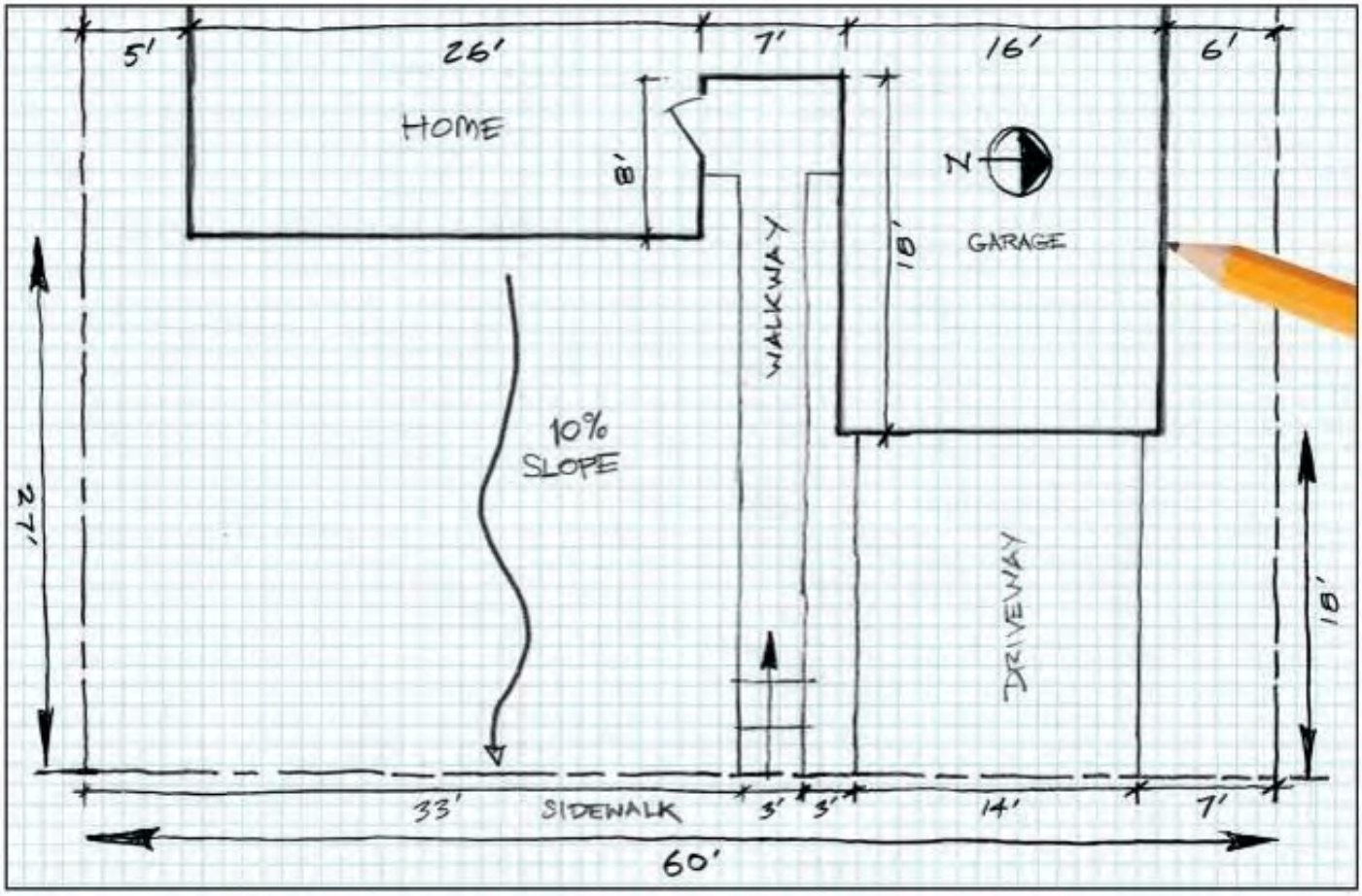
Site Analysis and Planning

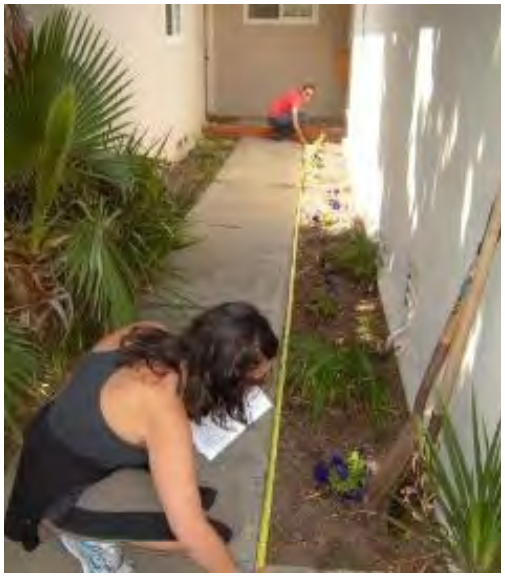


Good Design Uses the Watershed Approach



Start With a Base Plan



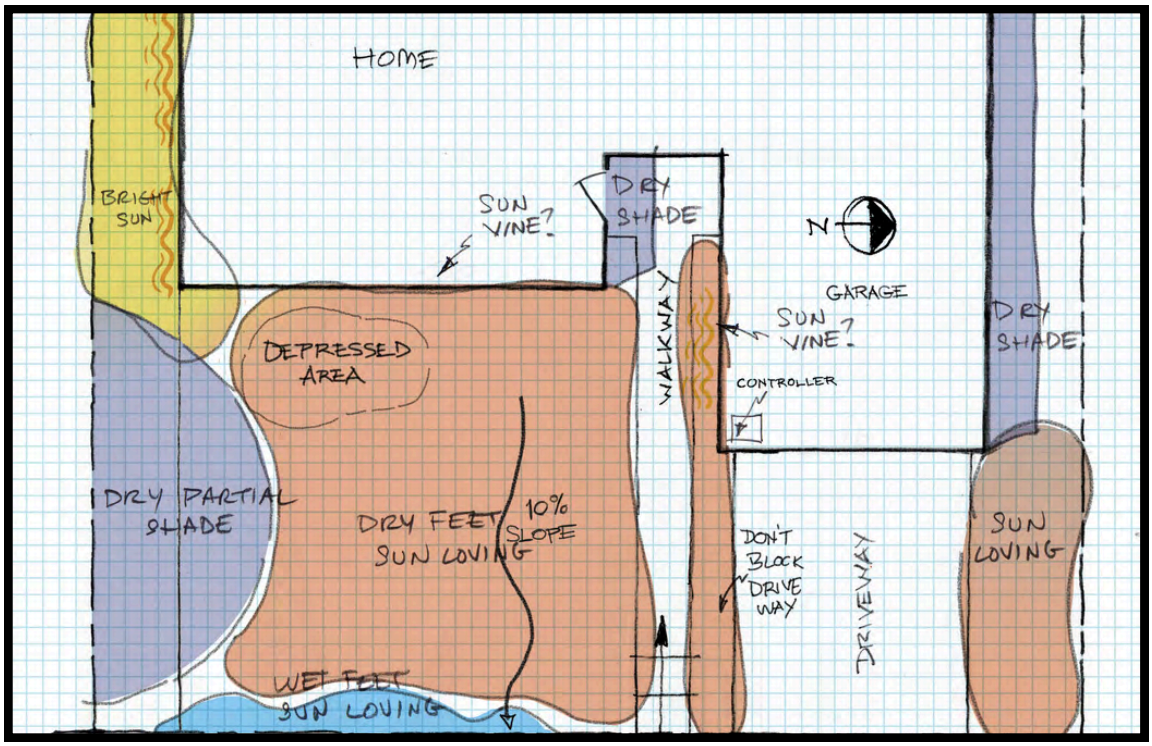


- Use 1/4" square grid paper so each Inch = 4 sq. ft. or 1 square = 1 ft.
- Find dimensions of your property on the Santa Clara County Assessor's parcel lookup.
- Ground-truth the dimensions with a tape measure (focus on the key dimensions of the building and hardscape elements).
- Using a satellite view from an online maps program gives good overall view of the property to trace on to your grid.
- Google Earth has a tool that has a built-in measuring tool.
- Use your smartphone or a compass to find North and mark it on the plan.
- Place outline of building, hardscape elements, large trees and shrubs on the plan.

Make at least 10 copies of this base plan so you can produce the layers of design needed to transform your landscape. Each layer represents another bit of information gathered or decisions to be made, so you really can't have enough copies.

Create the Plan in Multiple Layers

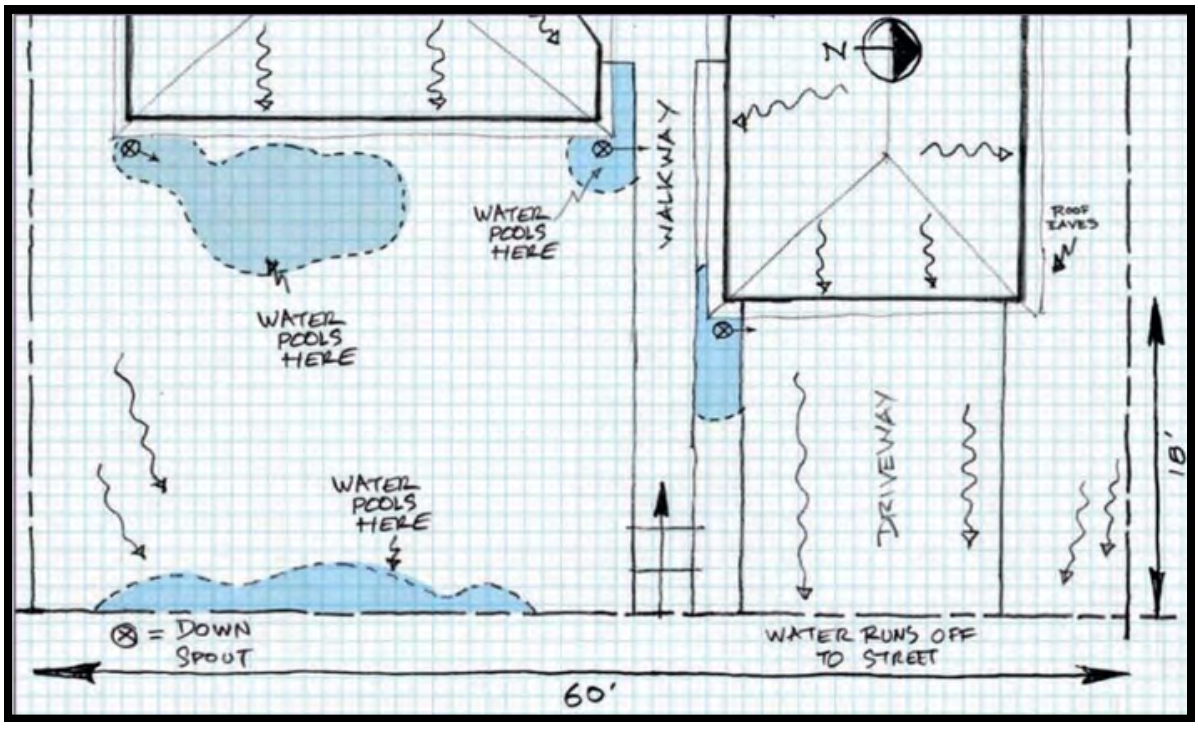
Microclimate Inventory - Conditions Special to Your Landscape



- Sun/Shade
- Slope
- Wet/Dry
- Land contours
- Tree roots
- Narrow spaces
- Radiant heat
- Wind tunnel

Site Water Map - What Happens to Water on the Site?

- Downspout Location
- Pooling
- Flowing
- Erosion
- Hardscape Wet
- Muddy



Measure and Map the Roof and Downspouts

The shape of your roof doesn't matter in the calculation of square footage of roof area. Measure the outside edges and calculate the square footage using the formula below.

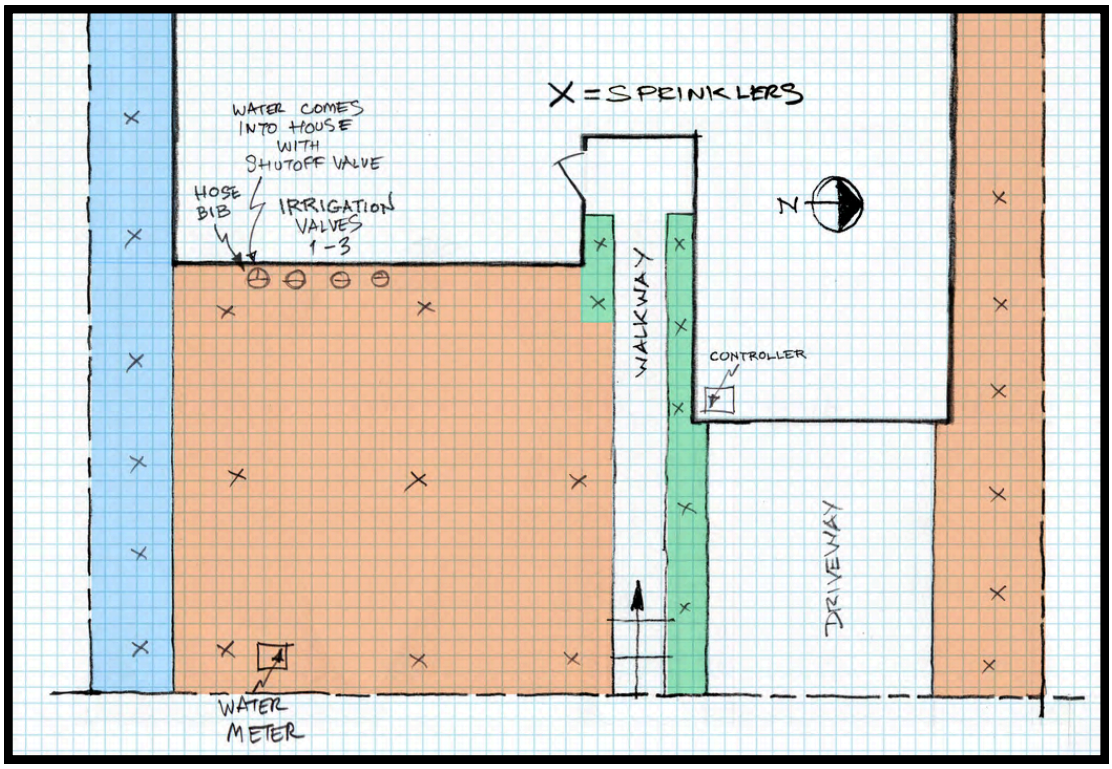
Identify locations of the downspouts and determine which part of the roof puts water into each one.

No gutters? No problem. Still want to look at shape of roof and sheet flow of water on to the ground.



Area of the Roof (Sq. Ft. of Roof) =
Length of Side A in Ft. x Length of Side B in Ft.

Map Existing Irrigation System



- Valve Locations
- Hosebibs
- Controller Location
- Sprinkler Zones
- Static Pressure

Take this opportunity to identify leaks and repair them while you are working on your design. Or, shut off the irrigation system all together and hand water for a time. There is no better way to get to know a garden than by hand watering.

Do a Hand or Jar Test to Determine Your Soil Type



SAND



SILT



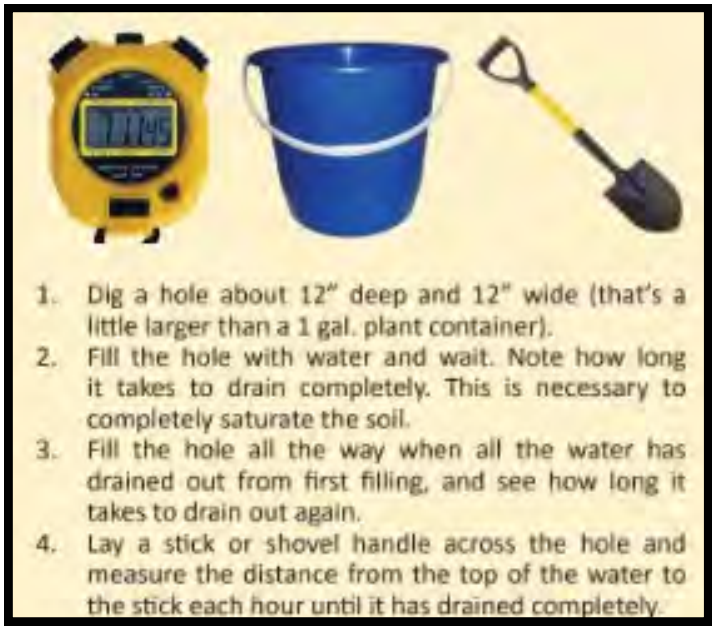
CLAY

Conduct a Compaction Test

Make notes around the landscape where you have more or less compaction. It will be more difficult to plant in highly compacted areas, so consider staging your planting. Start with a groundcover for a year or two and then plant the tree or large shrub afterward when the soil is more spongey and can support tree health.

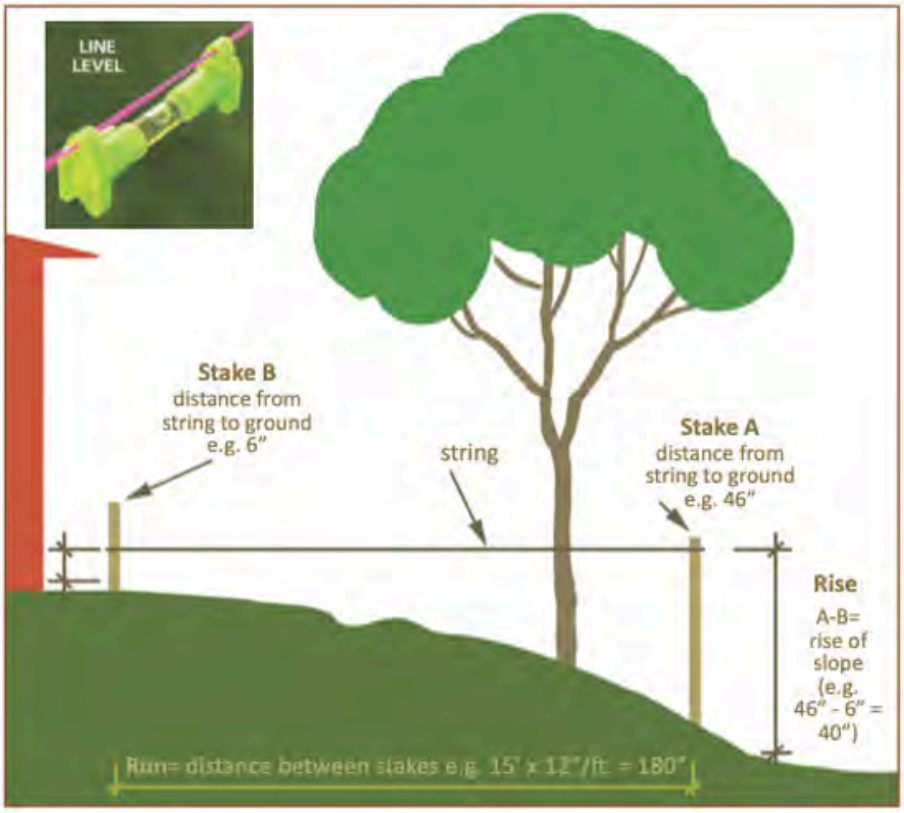
If the soil drains faster than 4"/hr. add compost.

If soil drains slower than 1"/hr. add compost.



1. Dig a hole about 12" deep and 12" wide (that's a little larger than a 1 gal. plant container).
2. Fill the hole with water and wait. Note how long it takes to drain completely. This is necessary to completely saturate the soil.
3. Fill the hole all the way when all the water has drained out from first filling, and see how long it takes to drain out again.
4. Lay a stick or shovel handle across the hole and measure the distance from the top of the water to the stick each hour until it has drained completely.

Determine Your Slope



Place two stakes in the ground at the top and bottom of the slope.

Connect a string between the stakes, pull it taut and use a line level to make sure it is level.

Measure the height of the string from the ground at each stake.

Rise of Slope = Stake A Height - Stake B Height

Run of Slope = Distance between Stakes

Rise/Run x 100 = % Slope

Make a List of Plants You'd Like to Keep in Place or Transplant



Make a Demolition Plan to indicate what stays and what goes.

What are the Design Priorities of Your Landscape Project?

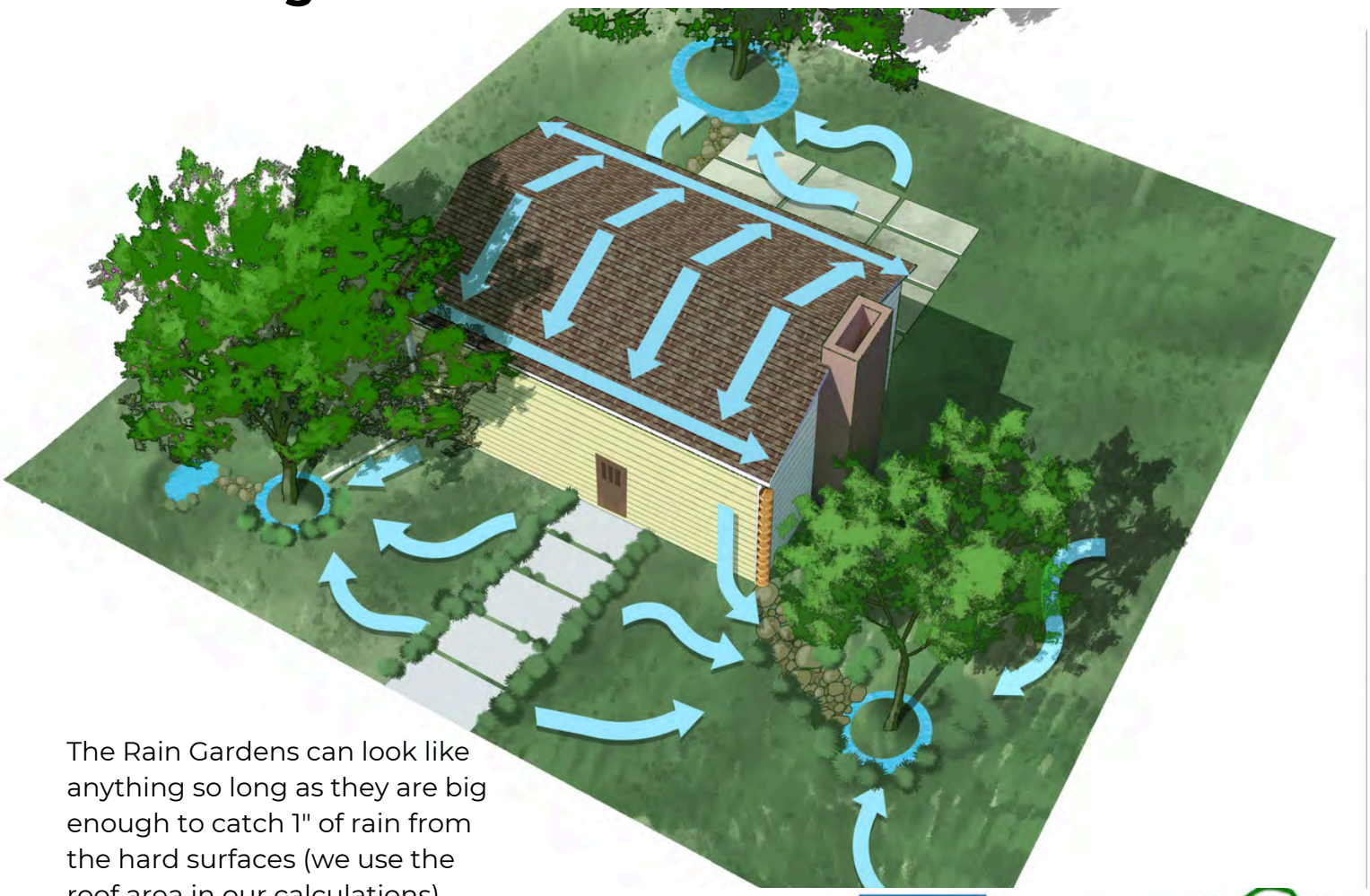
What are some constraints you need to consider?

- Fire Zone Regulations
- Viewshed (Not Blocking Neighbors' Views)
- HOA CCRs
- Neighbors
- Drainage or Hillside Concerns

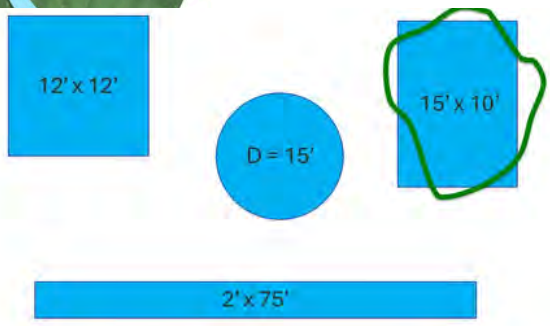
What are some ways you want to use your outdoor space?

- Gathering/Relaxing
- Cooking/Dining
- Kids Play Area
- Entry to the Home
- Screening/Other Functions
- Curb Appeal
- Match House Exterior Style
- Create Habitat
- Make Accessible Walkways

Holding Rainwater on Site



The Rain Gardens can look like anything so long as they are big enough to catch 1" of rain from the hard surfaces (we use the roof area in our calculations).

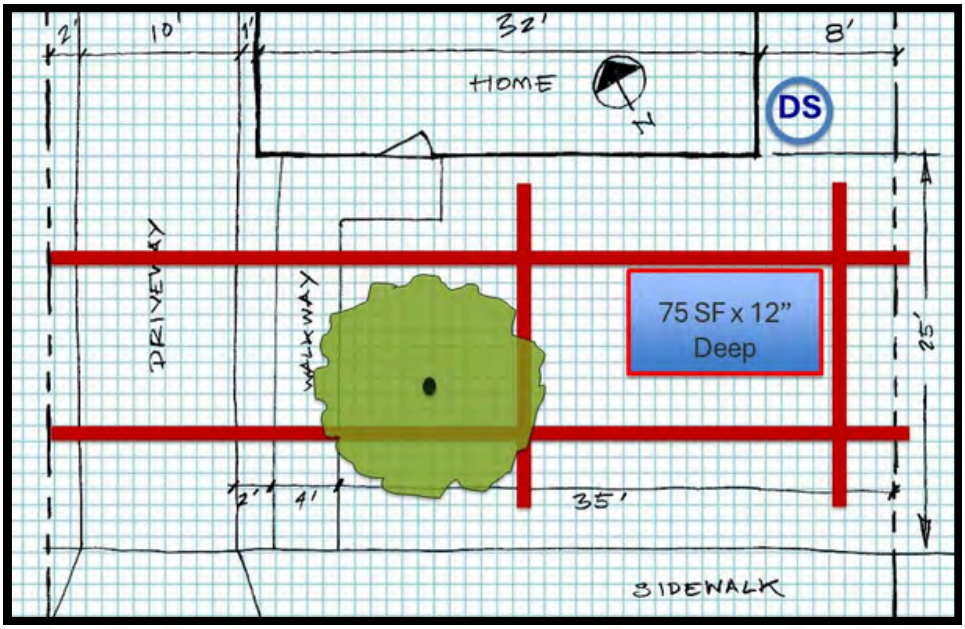


You Only Need 150 Sq. Ft. of Surface Area for each 1,000 Sq. Ft. of Roof Area or Hardscape.

Good Rain Garden Design Rules:

1. Keep all soil on site: Basin excavations = Bermed planter areas.
2. Do not import extra soil or gravel.
3. Maintain a 2% slope away from the foundation of your home to keep water moving into the basin (drop the grade 1" for every 4' you move away from the foundation.)
4. **Locate basins at least 5' - 10' away from the foundation of your home and your neighbor. Berms may be closer.**
5. **Keep basins 3' away from sidewalks and walkways. Berms may be closer.**
6. Shallow basins need more surface area. Deeper basins may fit into tighter set backs.
7. Clay soils? Keep it shallow.
8. Using rock? Make it 1.5x bigger and keep some open areas for water to seep into soil.

Place the Basin Within the Setback Area

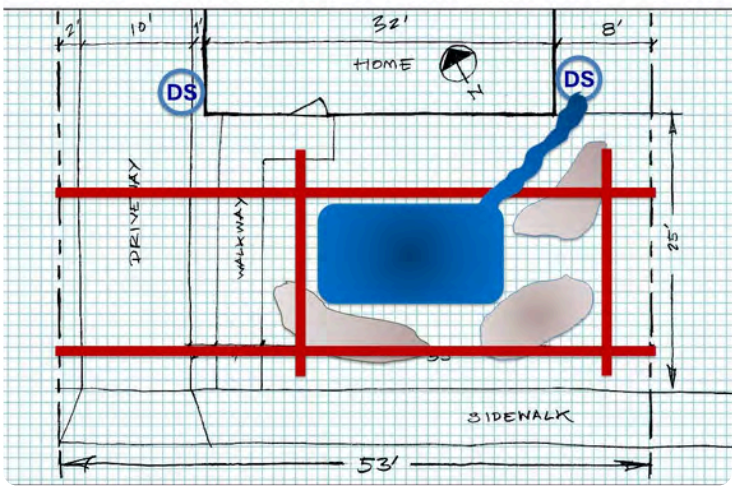


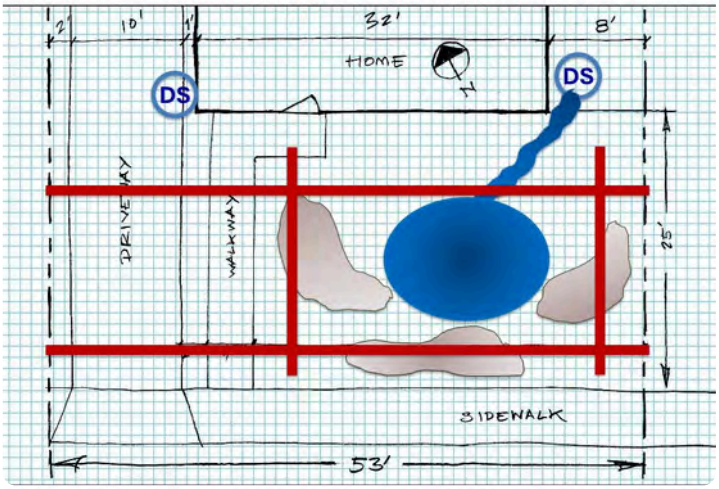
If your setback area is more constrained, then make the basin a smaller surface area and dig deeper to keep the same volume.

Here we show half the surface area and twice the depth to hold the same amount as 150 sq. ft. 6 inches deep.

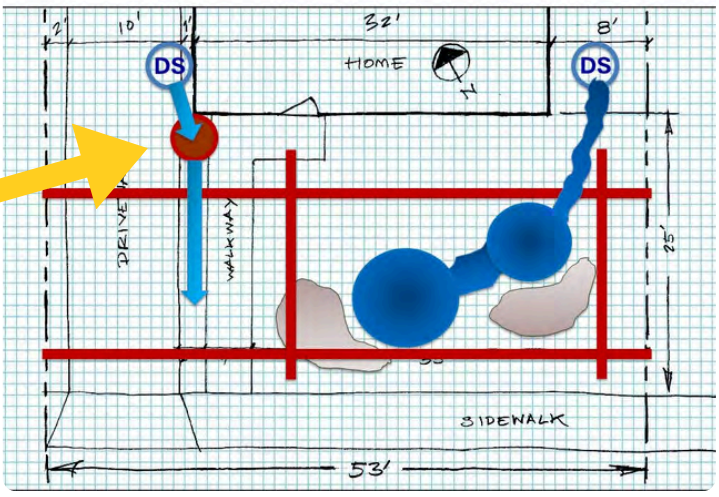
Multiple basins can be used to move water around the property.

Keep a 1/4" rise per 1 ft. run grade change to move the water.



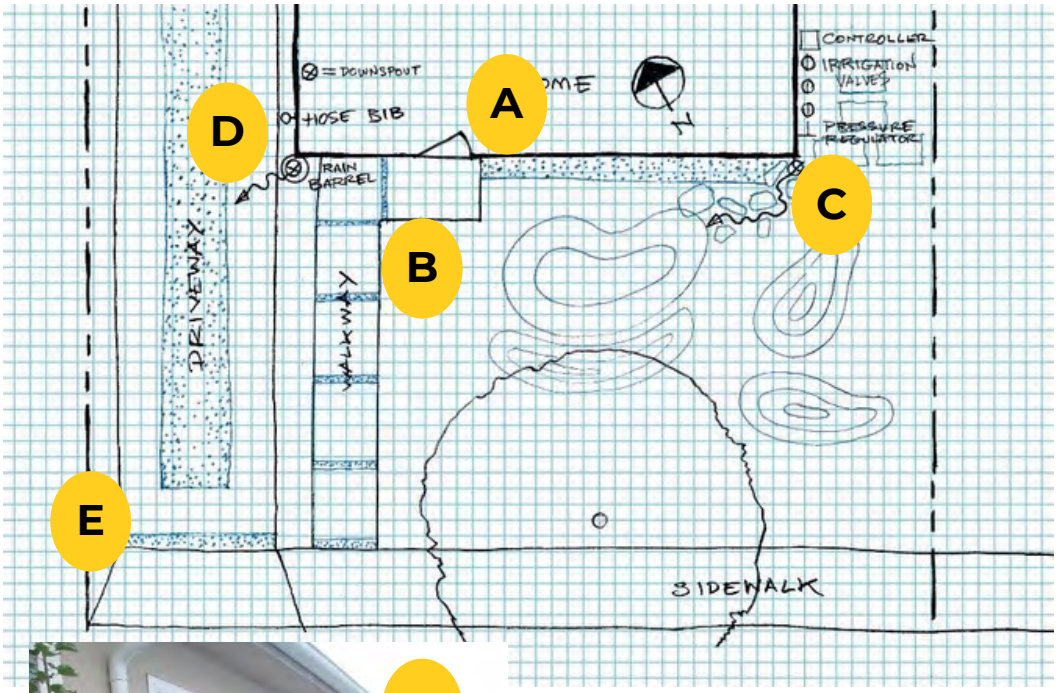






When adding a rain barrel, be sure to make an overflow area in the landscape to direct the hose into during a rain event.

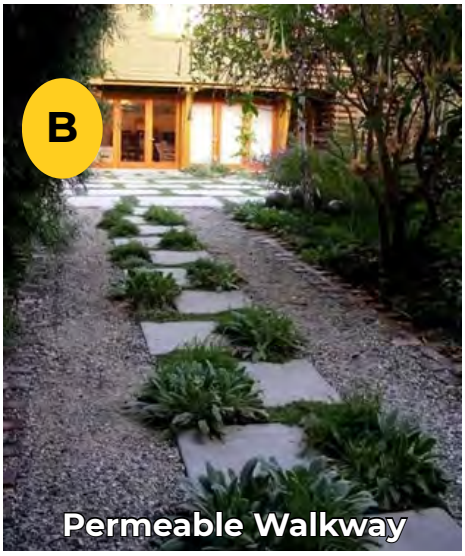
Use Multiple Strategies to Slow, Sink, and Spread Rainwater







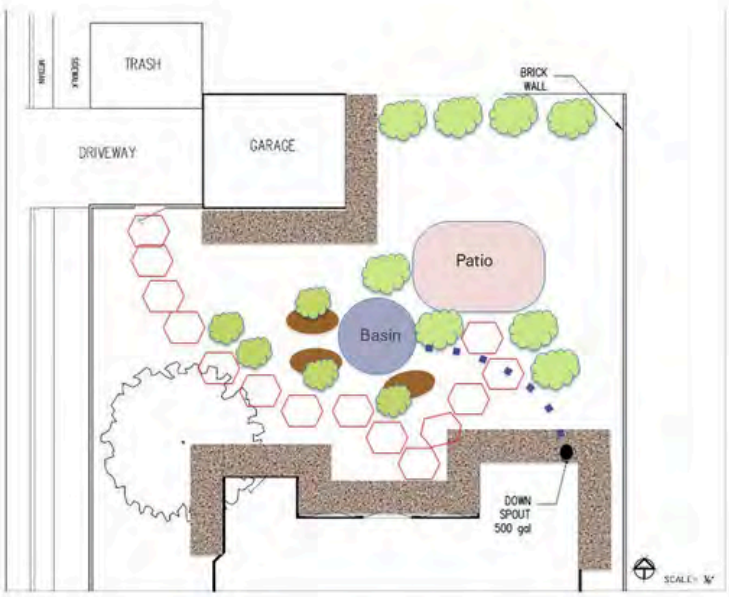








Place Hardscape with Consideration of the Basin and Your Planned Use of the Garden



Locate the Gathering Patio near the Basin to create visual interest.



Locate the Gathering Patio near the House for easy access and place the Basin as a destination.

What Permeable Hardscape Will You Use in Your Landscape Project?

Pathway

Patio/Gathering Area

Zone Zero

Try several ideas and use a new Base Plan layer for each one. Mix and match these ideas as you consider plants and the rest of the plan.

Fire, Hillsides, and Shade

Know Your Fire-ready Landscape Zones



Zone Zero (0-5' From the House)

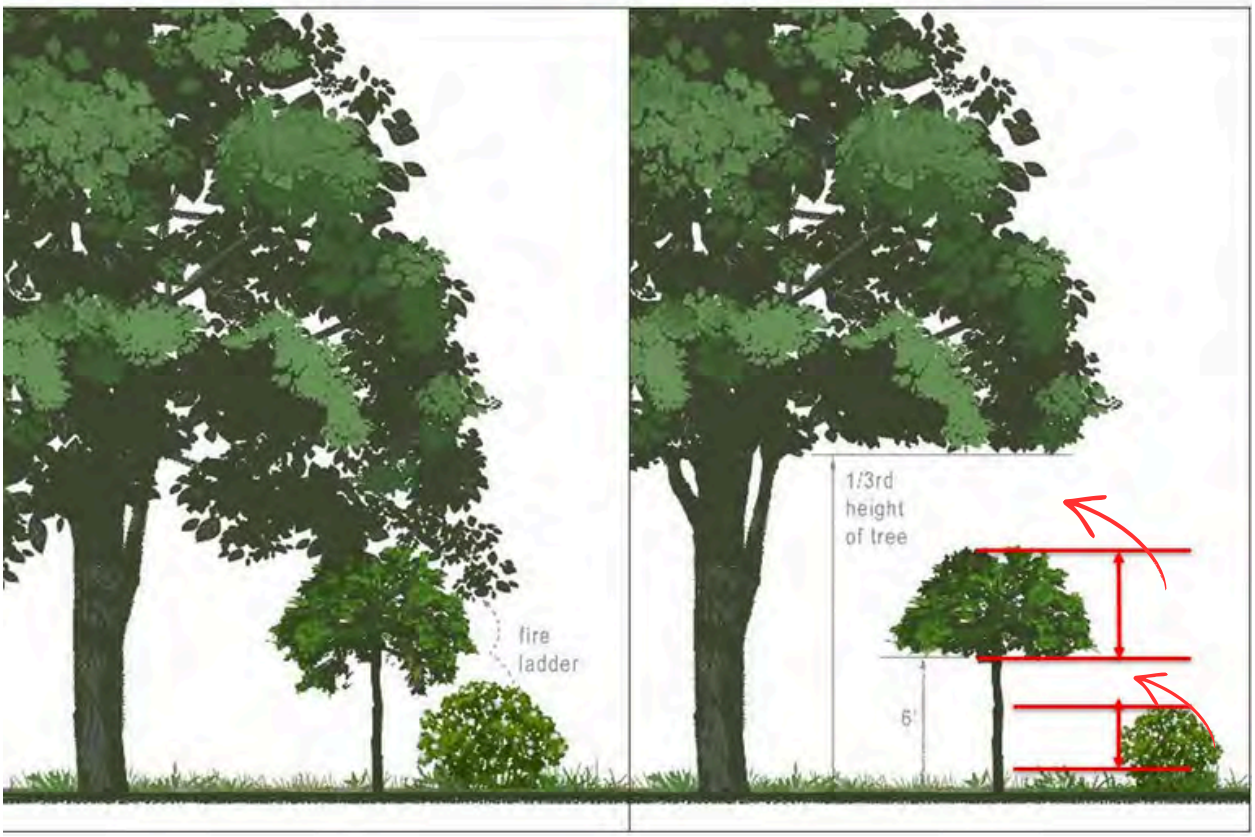
- Good place for a walkway around the house.
- Judicious use of gravel or rock in this area.
- Keep it permeable or graded toward a permeable area.
- Cover all vents and crawl space openings with 1/4" or smaller steel mesh to reduce embers.
- Keep trees off the building at least 10' from the roof or 10-15' above the roof.
- Keep wooden structures from connecting with the house - use metal instead.

Zone One (5'-30' From the House)

- Create wide walkable and permeable pathways between planting beds densely planted with a diversity of plants.
- Plant low evergreen groundcovers.
- Build short stone firebreak walls.
- Lift the skirts of trees in this zone 6' above the ground or ⅓ of their total height (whichever is greater)
- Composted living mulch is best in this zone to keep soil and plants healthy.
- Focus on soil health and good maintenance of dead plant material.



Avoid Plant and Tree Fire Ladders - Space Appropriately

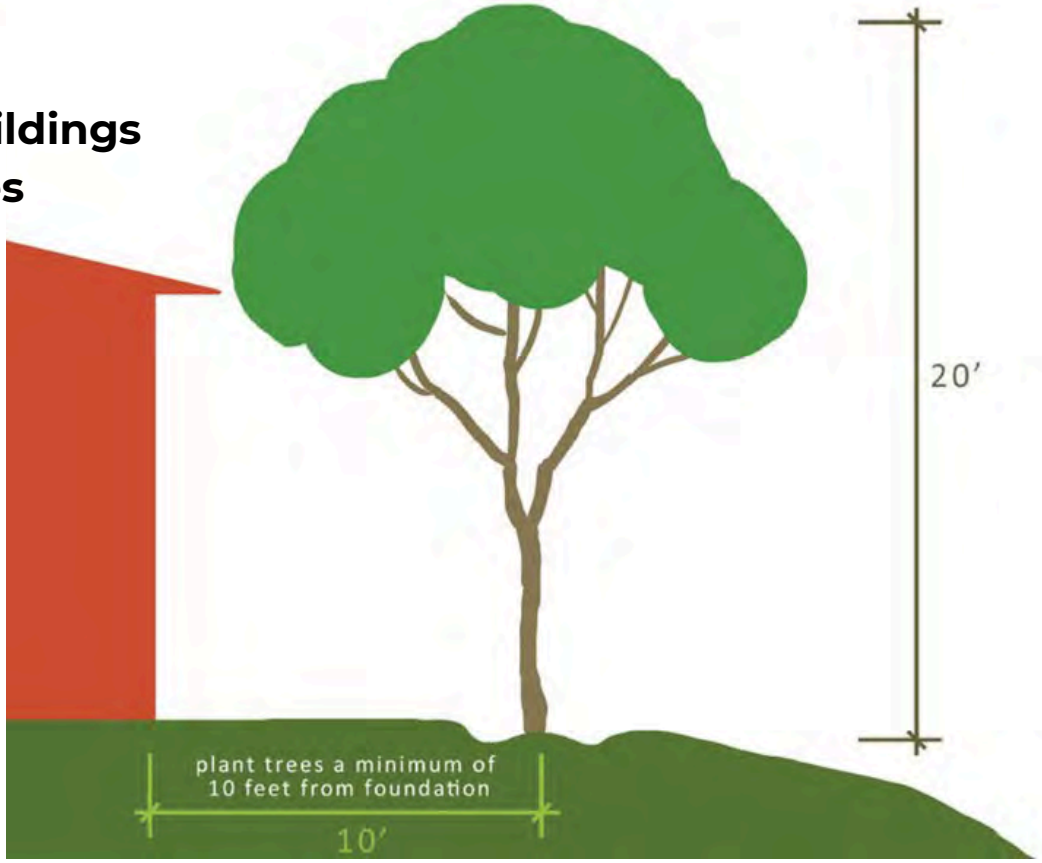


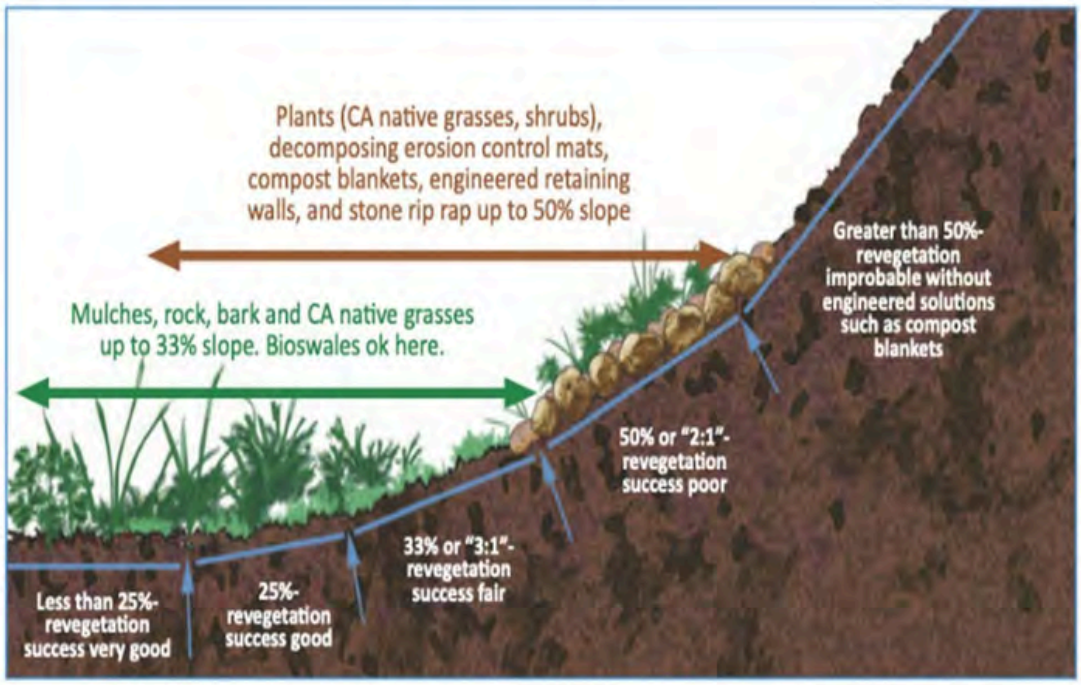
Stay Away From Buildings When Planting Trees

If planting near a building, maintain at least a 10' distance from the structure. This is a good practice for the health of the plant and fire safety.

A good rule is to stay away from the building by ½ the mature height of the tree.

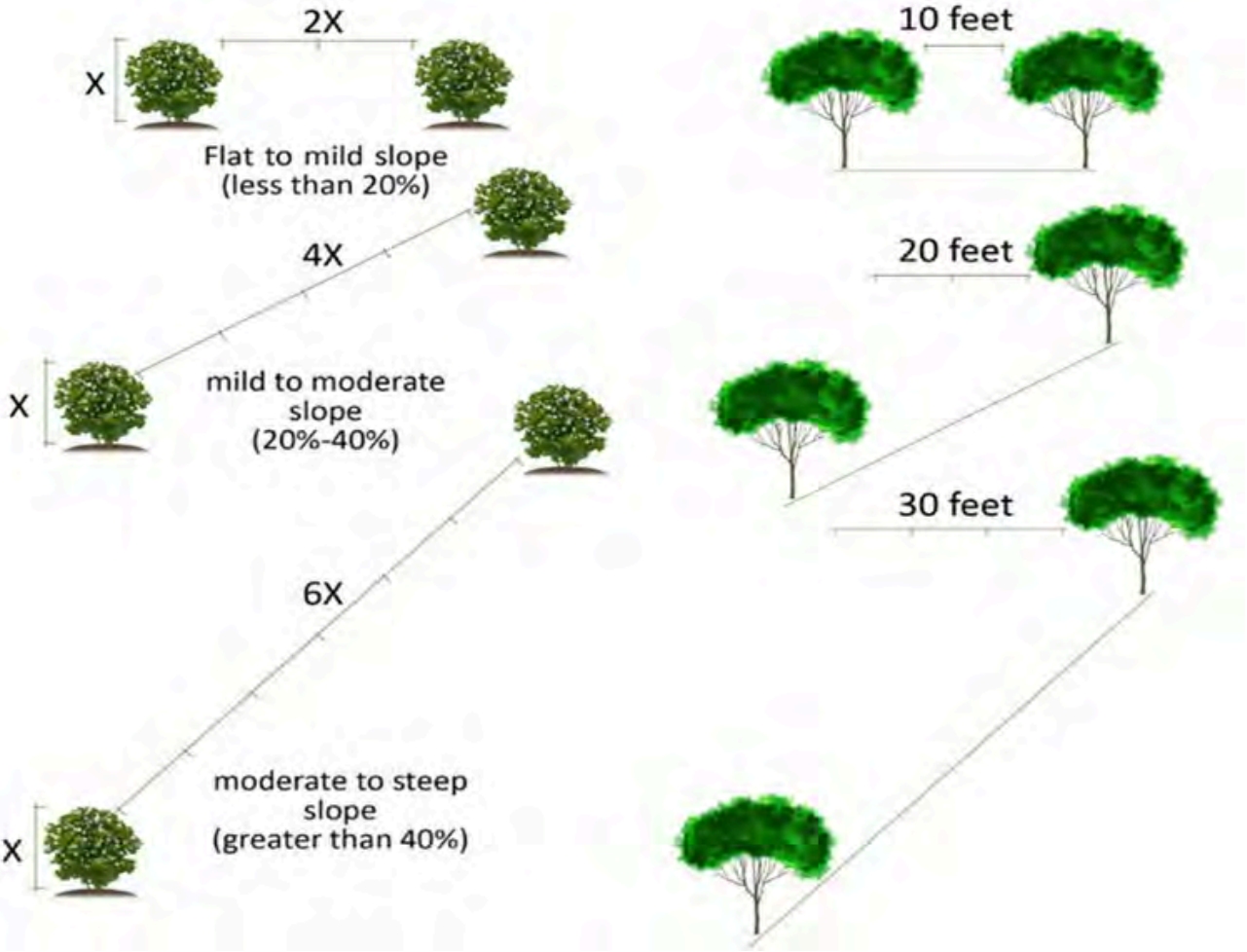
That means, if your tree is expected to be 30' tall, place it 15' away from the building.





Calculate your slope so you know which options are best for stabilization and planting.

Hillside Plant Spacing



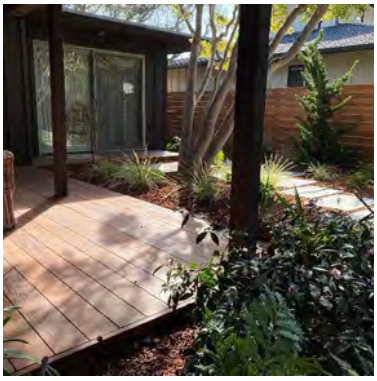
Considerations for Shade Planting



DEEP SHADE



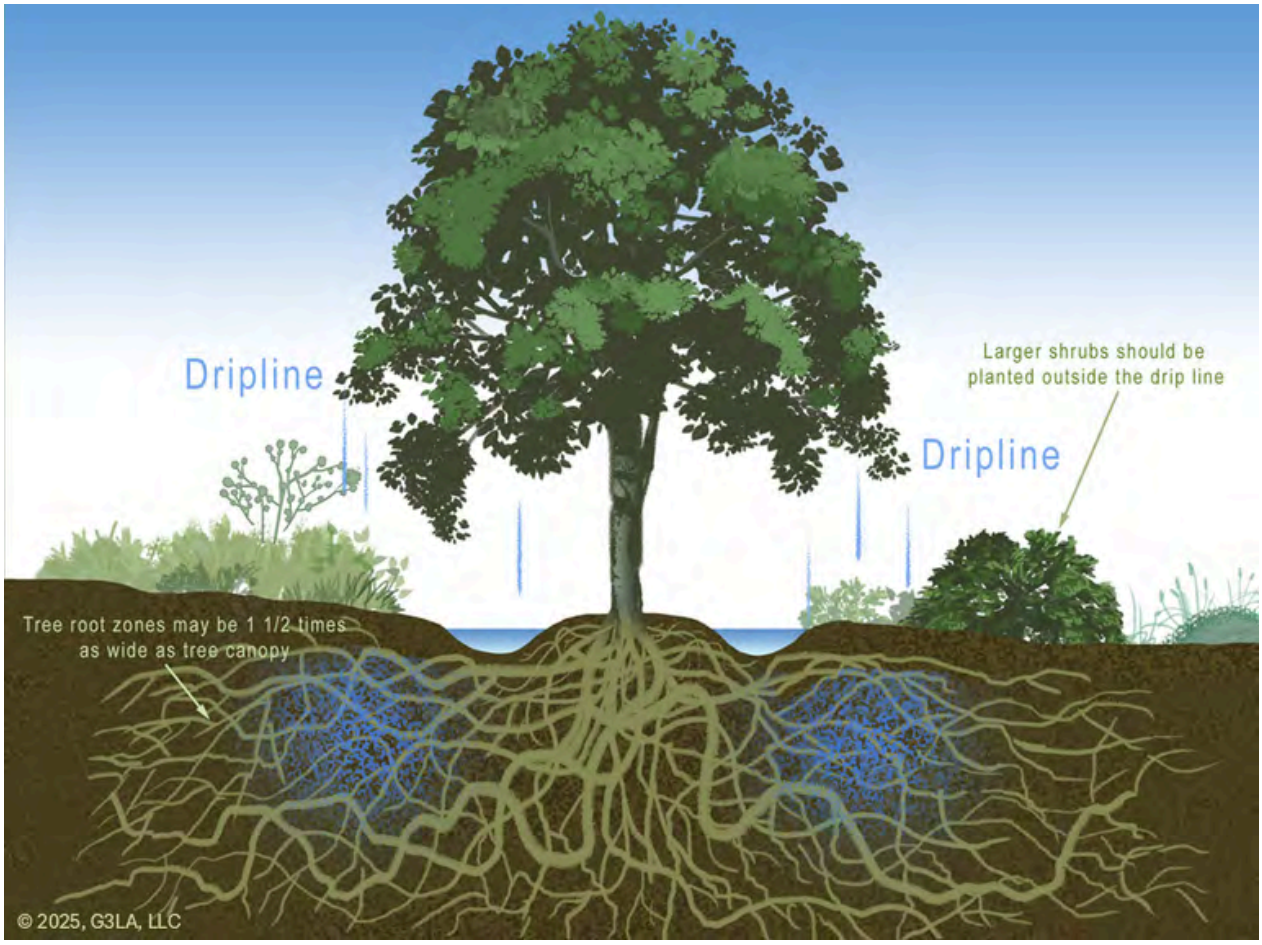
FILTERED SHADE



TRANSITION

Select plants that require the right amount of shade, and make sure you are choosing low-water alternatives. Make notes on your planting plan about the sun requirements of your selections so they can be placed properly on your plan.

Place your plants outside the dripline of the trees so as not to disturb the roots. If the plants are happy, they will grow under the canopy from the outside.



Trees and Groundcover



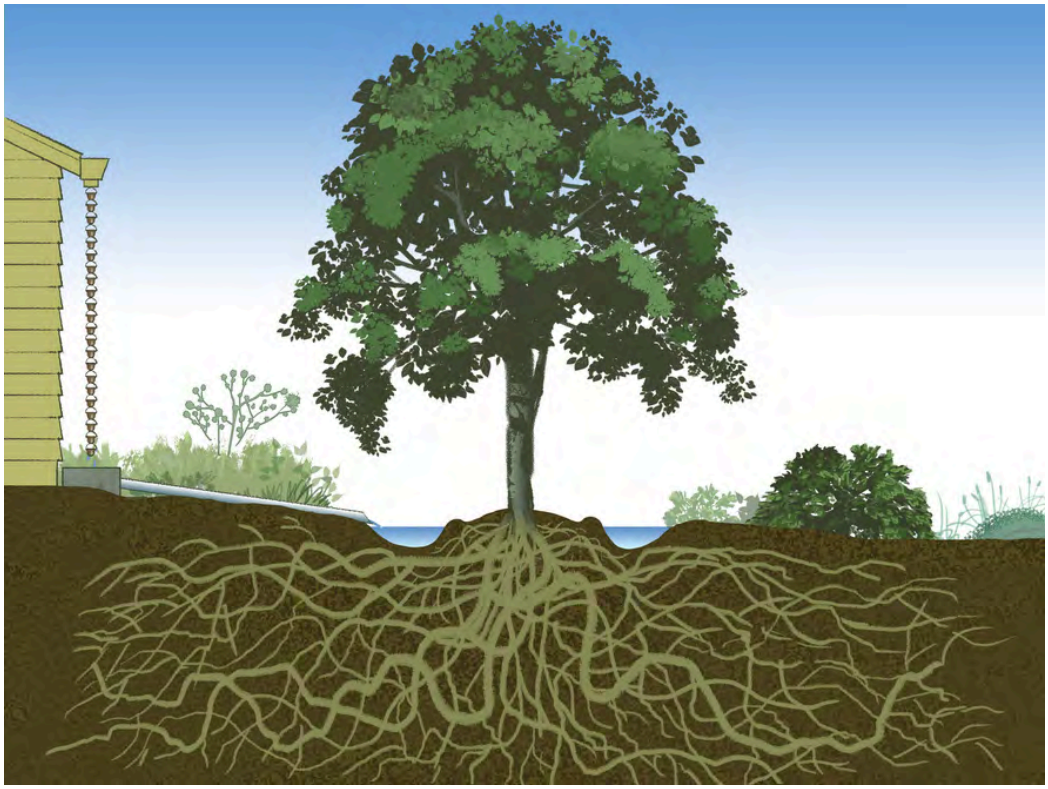
Plant More Trees

- Architecture
- Color/Seasonal interest
- Climbing
- Fruit
- Hillside holding
- Shade
- Stormwater Reduction

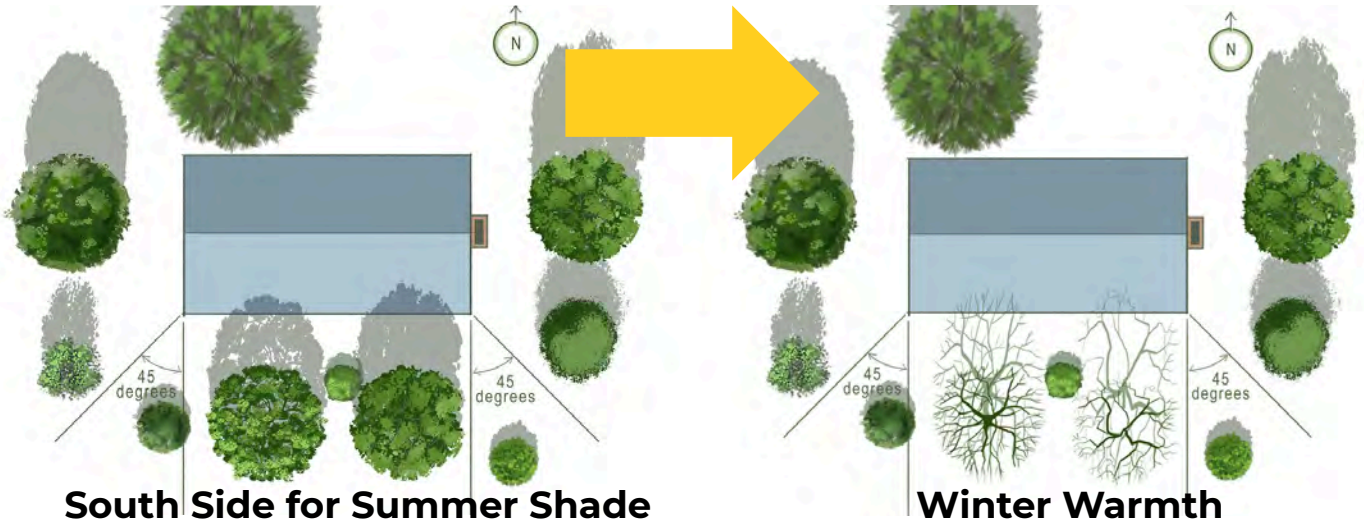
Respect Tree Roots

Don't mess with the grade around the trees. Plant at least 3" above the surrounding grade and do not pile up any soil on the roots of or at the base of an existing tree. This is true for mulching as well. Do not make VOLCANOES of mulch around trees. No mulch should touch the trunk.

Place basins around the tree rather than placing the tree in the depth of the basin.

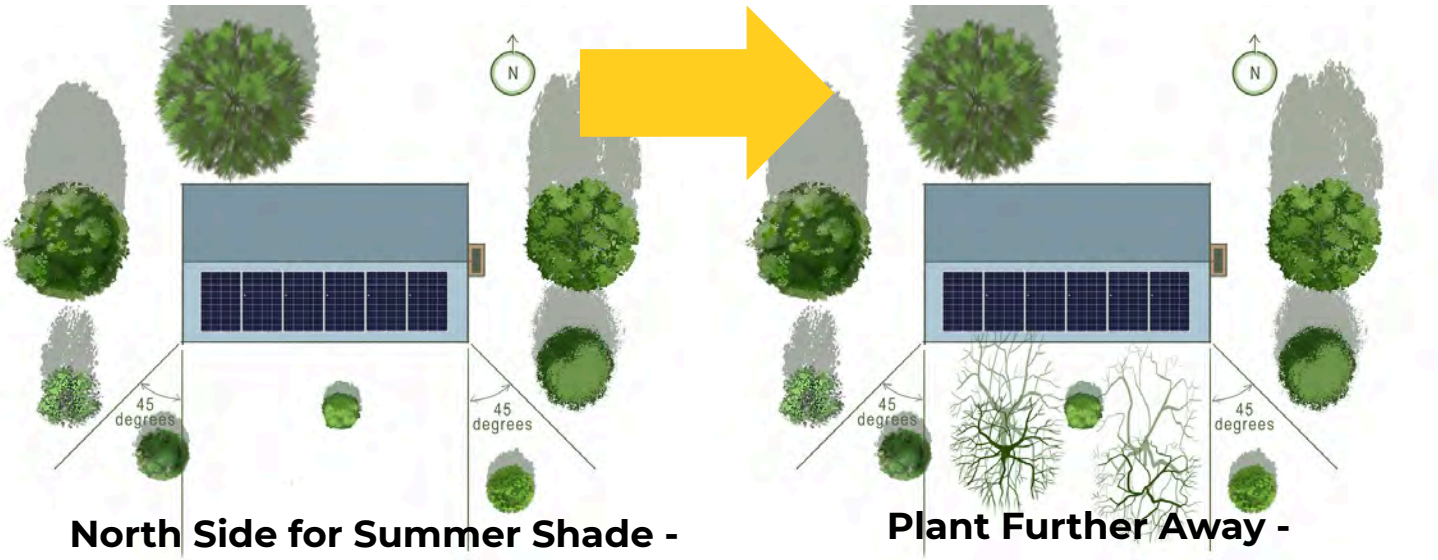


Plant Trees to Shade the Building



South Side for Summer Shade

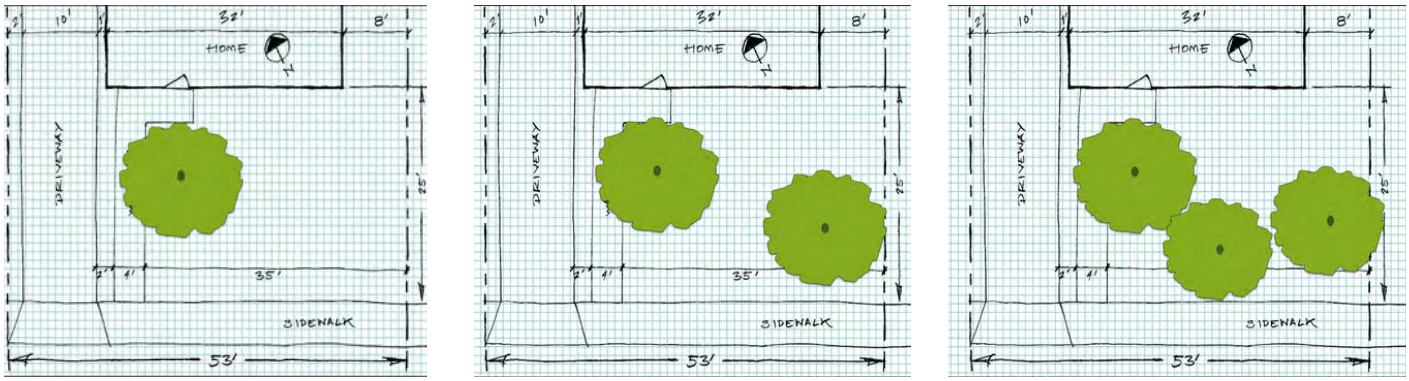
Winter Warmth



North Side for Summer Shade - Solar Panels

Plant Further Away - South Side Solar Panels

Use Trees in Your Front Yard



SHADE ENTRY

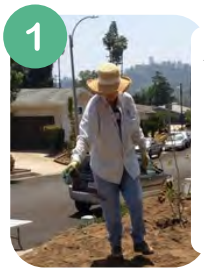
FRAME VIEW

CREATE PRIVACY

Turf Removal Without Chemicals

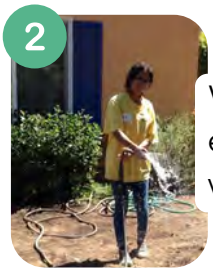
Sheet Composting/Sheet Mulching in EVERY Landscape

1



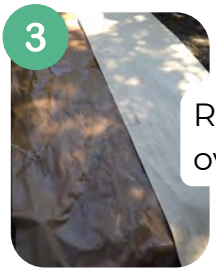
Add 1/4" - 1" compost or humates (a little goes a long way)

2



Water everything well

3



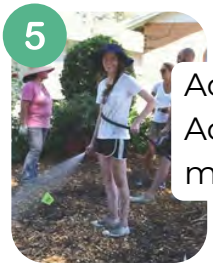
Roll out paper, overlap by 6”

4



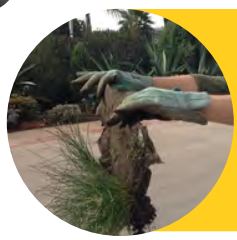
More water. Add 1-2” of mulch

5



Add more water. Add another 2" of mulch.





SKIP the weed fabric. It keeps organics from breaking down and making the healthy soil sponge.

How Much Mulch or Compost Will You Need?

Compost – 1,000 sq. ft. ¼” – 1” needs 1-3 yards
Mulch – 1,000 sq. ft. 3-4” needs 10-12 yards

What’s the square footage of your landscape?

How much compost and mulch will you need?
Sq. Ft. x 0.003 = Yards of compost needed per Inch per Sq. Ft.

Keep Grass in Place: Cool Season Grass

If you have **cool season grass** you can keep it in place and sheet compost over top. You will need to wait about 4 months and keep it wet while it decomposes, and the end result is soil ready to be contoured and planted. While this option takes longer, it is less expensive than sod cutting.

More mulch is needed after contouring and planting is completed. Always keep 3-4" of mulch on top of the soil to keep the ground cool and the moisture in.



Cover Grass with Sheet Composting



Contour Later (4 months)



Plant After Contouring

Sod Cut and Remove: Warm Season or Cool Season Grass

If you have **warm season grass** you will have to remove it before sheet composting. You may need to rent a dumpster to dispose of the grass. Once the grass is out, contour the site. Then sheet compost over the contoured landscape and plant on the same day. Top it all off with enough mulch to have 3-4" around all of the plants.



Sod Cut to Remove Grass



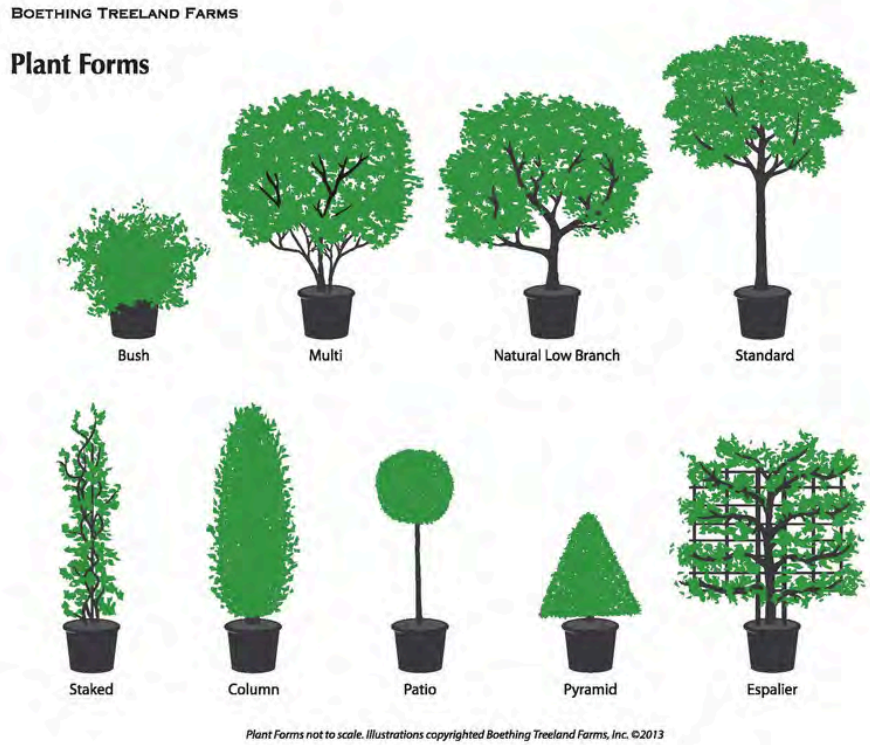
Contour Right Away



Sheet Compost After Contouring and Plant

The Planting Plan

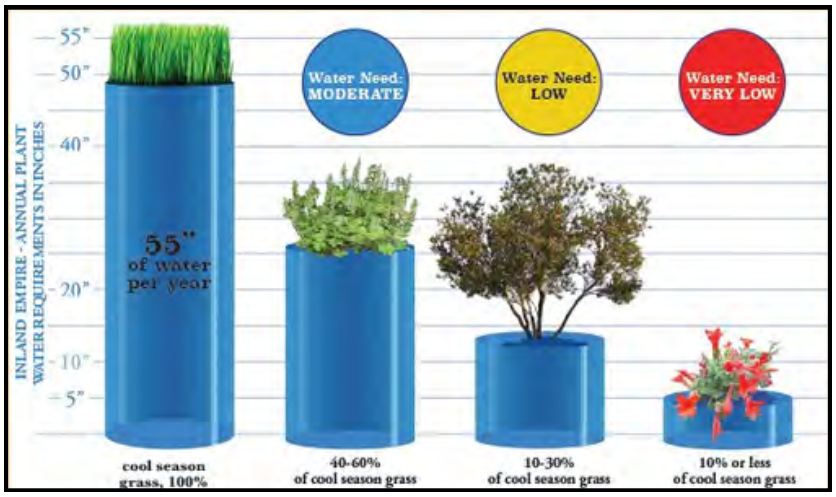
Create Your Plant Palette



While we can change some forms with pruning and some growth habits with irrigation, it is best to select the correct form from the start and limit the manipulation required to obtain the desired shape or size.

Remember to select plants that require less water than cool season grass (Moderate, Low, and Very Low water requirement plants) to reduce the amount of water required by your new landscape.

Use **Calscape.org** to select CA native plants.



Keep Track of Your Plant Research

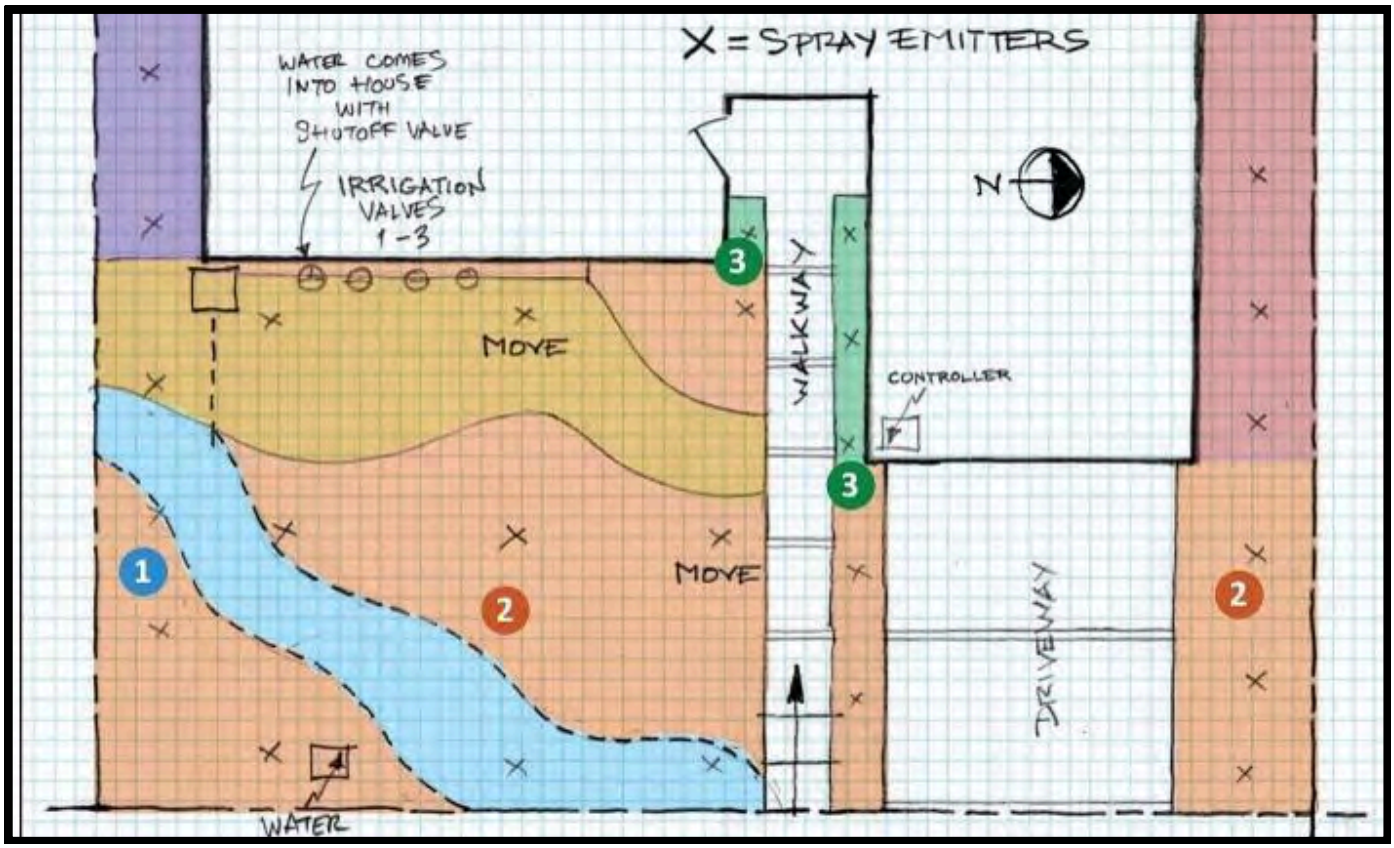
Form, Latin Name, Common Name, Height x Width, Sun Exposure, Water Needs & Flower Colors are the min.

Form	Botanical (Latin) Name	Common Name	Height	Width	Sun	Water Need	Flower Color
Grass	Bouteloua gracilis 'Blonde Ambition'	Blonde Ambition blue grama	2.0'	2.0'	Full Sun	Low/Very Low	wheat
Shrub	Salvia leucophylla 'Bee's Bliss'	Bee's Bliss sage	2.0'	8.0'	Full Sun	Low	purple
Tree	Punica granatum 'Nana'	Dwarf pomegranate	3.0'	5.0'	Full Sun	Low	orange
Vine	Vitis 'Rogers Red'	Rogers Red grape	x	30.0'	Part/ Full/Shade	Low	white
Perennial	Juncus patens	CA gray rush			Full Sun/ Shade	Moderate	brown
Perennial	Epilobium canum var. latifolium 'Everett's Choice'	Everett's CA fuchsia	0.5'	5.0'	Full Sun	Very Low	red

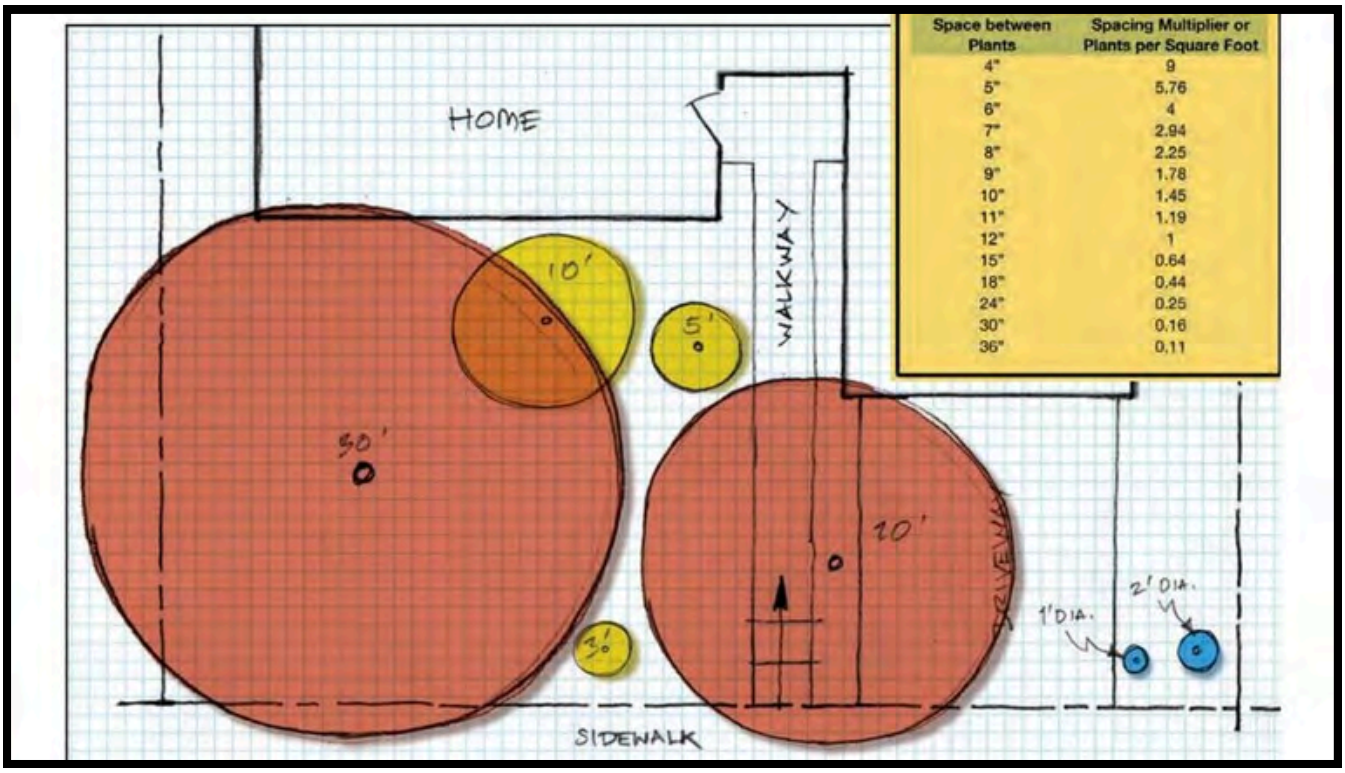
Group Plants by Hydrozone in the Landscape



Match your planned hydrozones to your existing irrigation layout if you want to convert spray heads to drip irrigation. Make notes on another layer of the base plan.

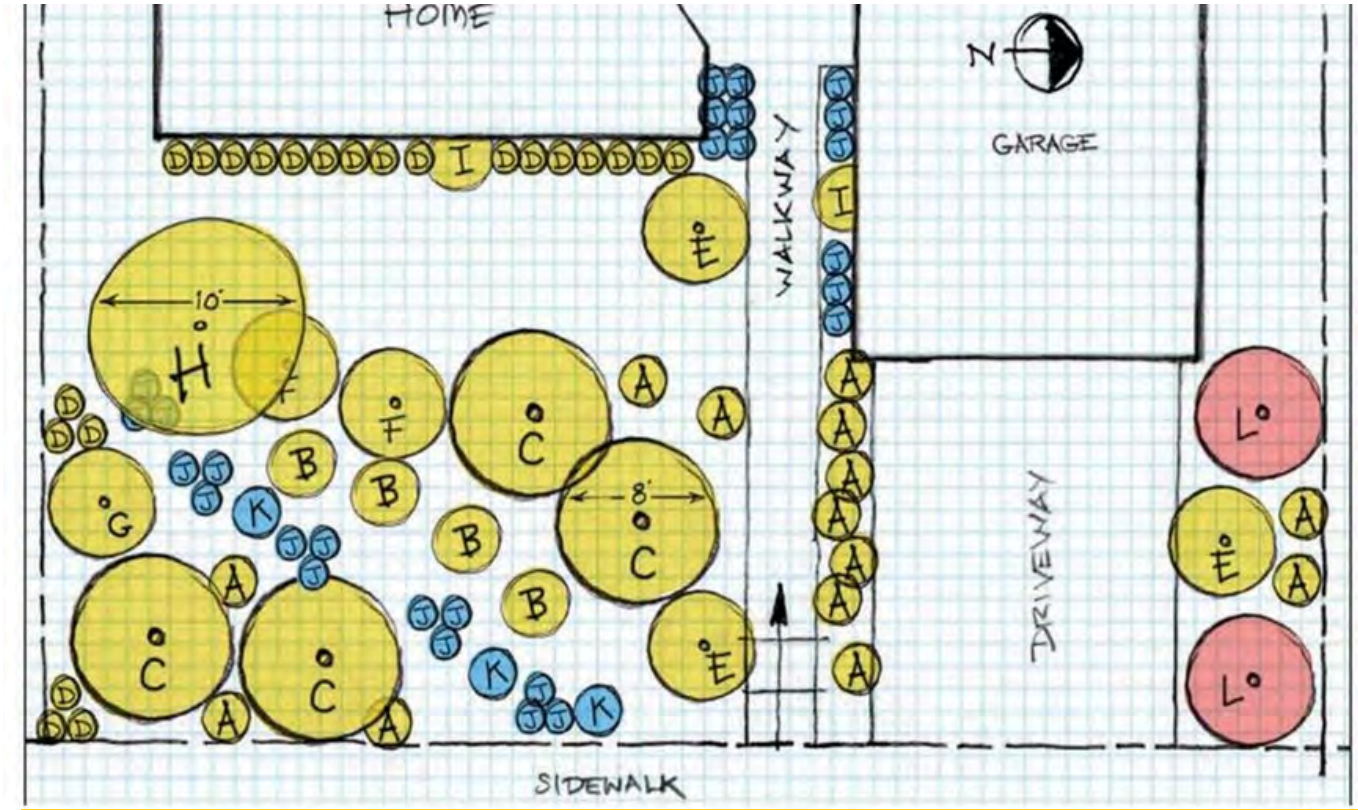


Scale Plants for Maturity (Reduces Future Maintenance)

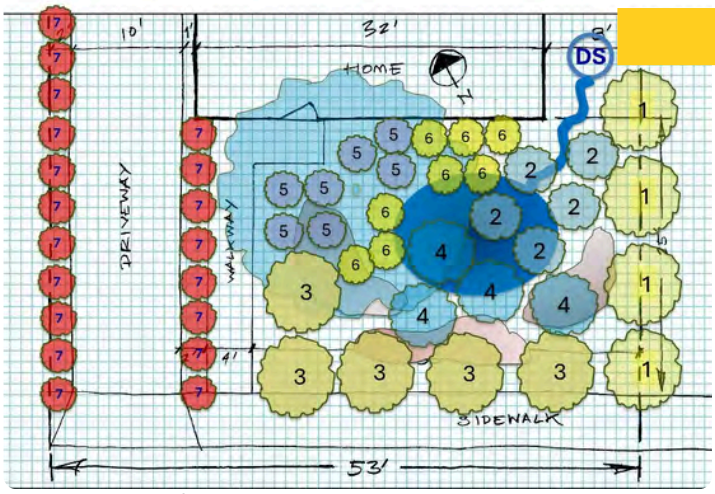


Space between Plants	Spacing Multiplier or Plants per Square Foot
4"	9
5"	5.76
6"	4
7"	2.94
8"	2.25
9"	1.78
10"	1.45
11"	1.19
12"	1
15"	0.64
18"	0.44
24"	0.25
30"	0.16
36"	0.11

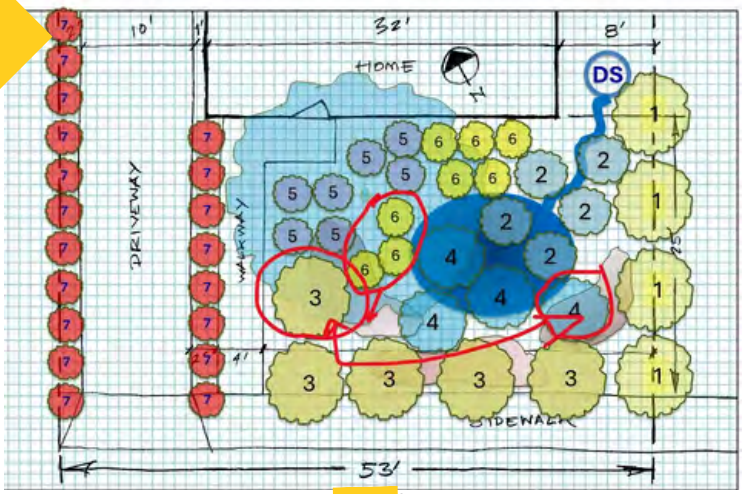
Make sure you research the width of the plants and place them on your plan at the expected mature size. Use the color coding to indicate hydrozones. While some plants may stand alone as focal points, it is usually better to layout plants in groups of 3, 5, or 7 or other odd numbers for greatest impact.



Keep Adjusting All the Elements on Paper Until You're Happy



First Layout Attempt

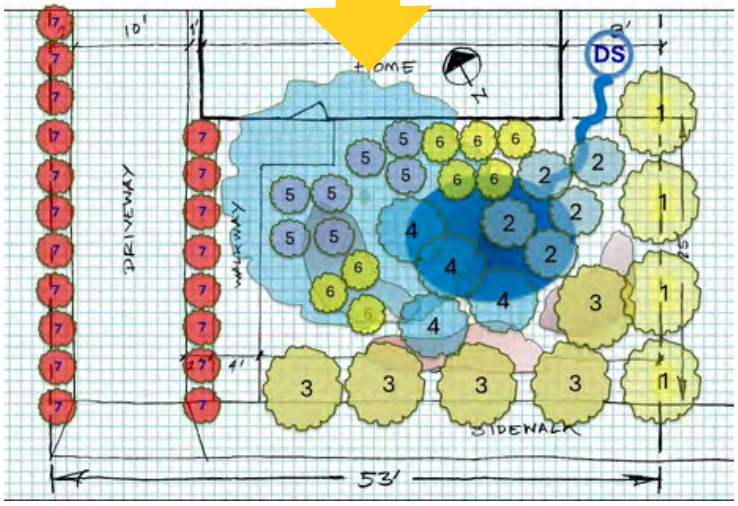


Needs Adjustment

You can make mistakes on paper! Move things around. Good landscape design is all about iteration and learning from previous mistakes.

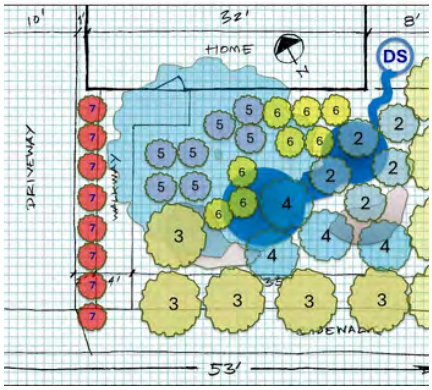
Pay attention to the hydrozones and which plants are in the basin or on the berm. MODERATE plants may withstand more shade and wet feet while LOW and VERY LOW plants will need faster drainage and should be placed on or near the berms.

Place trees and large shrubs first and smaller plants after.

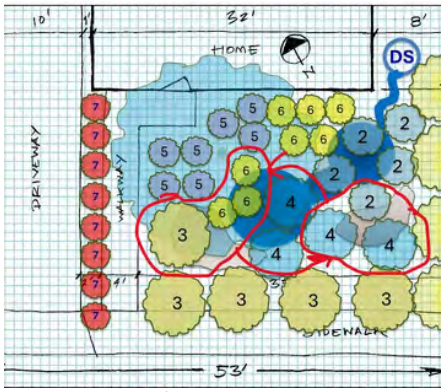


Better: Hydrozones Make Sense

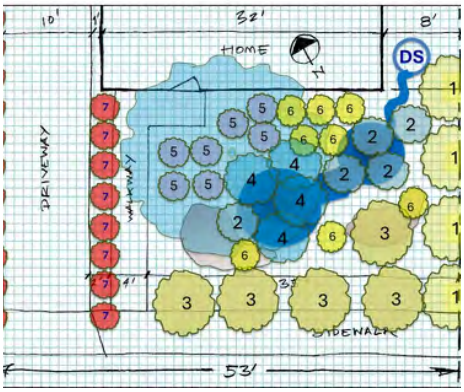
Try it With Different Rain Garden Layouts



First Attempt



Adjustment



Better Layout

Take Notes Here



Valley Water

CLIMATE READY
LANDSCAPE ACADEMY

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