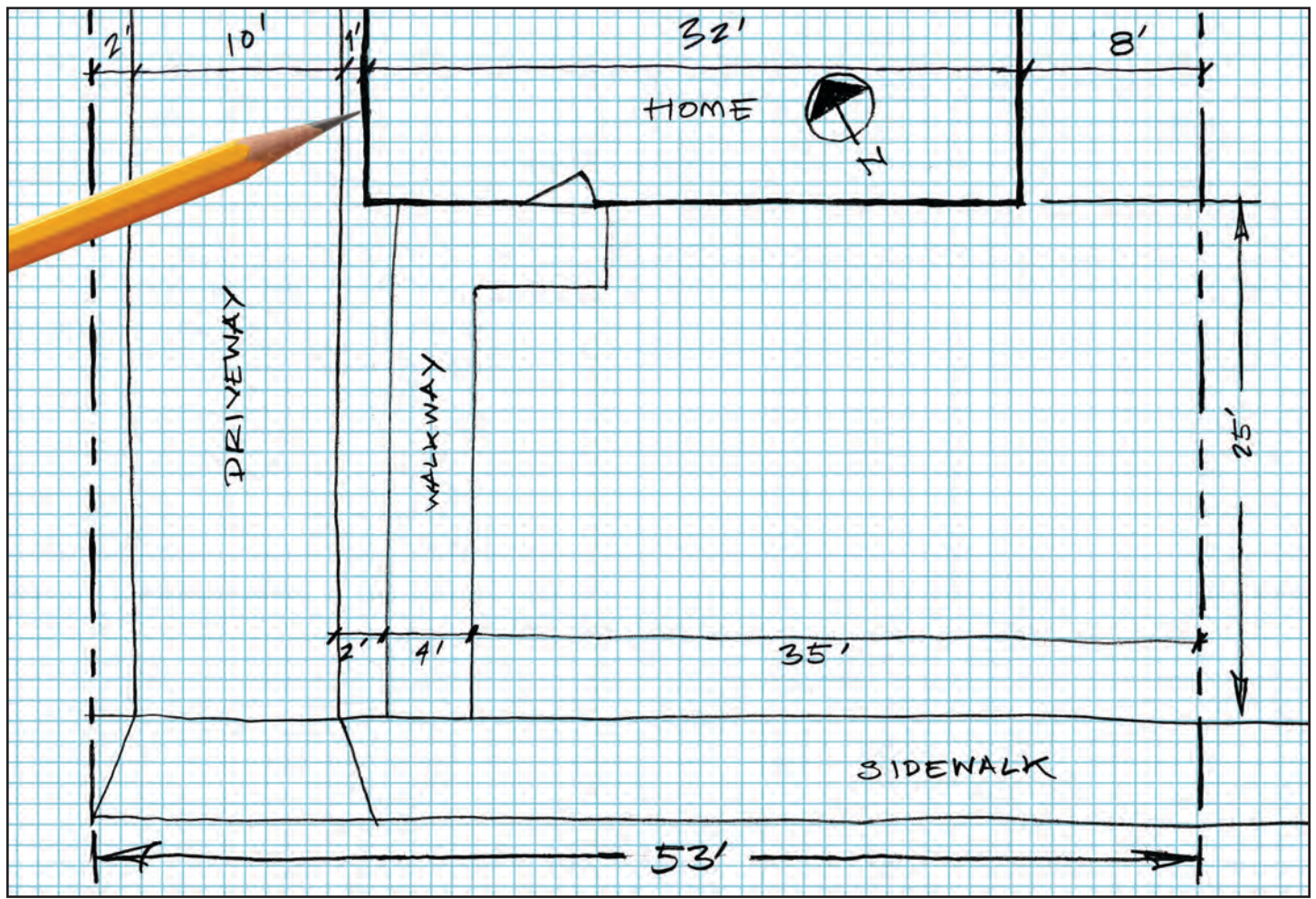


Start with a Site Plan



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Measure to Make Your Site Plan

Measure your site. Once you've got the dimensions, trace the lines cleanly on a sheet of grid paper. Make at least 10 copies that are dark enough to still see the grid. You will use each of these sheets to evaluate and plan the changes for each aspect of your landscape. **Our grass area above is 25' x 35' or 875 sq. ft.**

Depending upon the size of your property, most projects can use a 1/4" = 1' scale. Try using 1 box = 1 foot.

Mark the locations of trees and large shrubs you are unlikely to remove. Always use three reference points to triangulate the location of trees. Label any hard surfaces like driveways and walkways.

Take some photos and mark where they are located on your site plan. Use your smartphone or a compass to find North and also mark it on the plan.

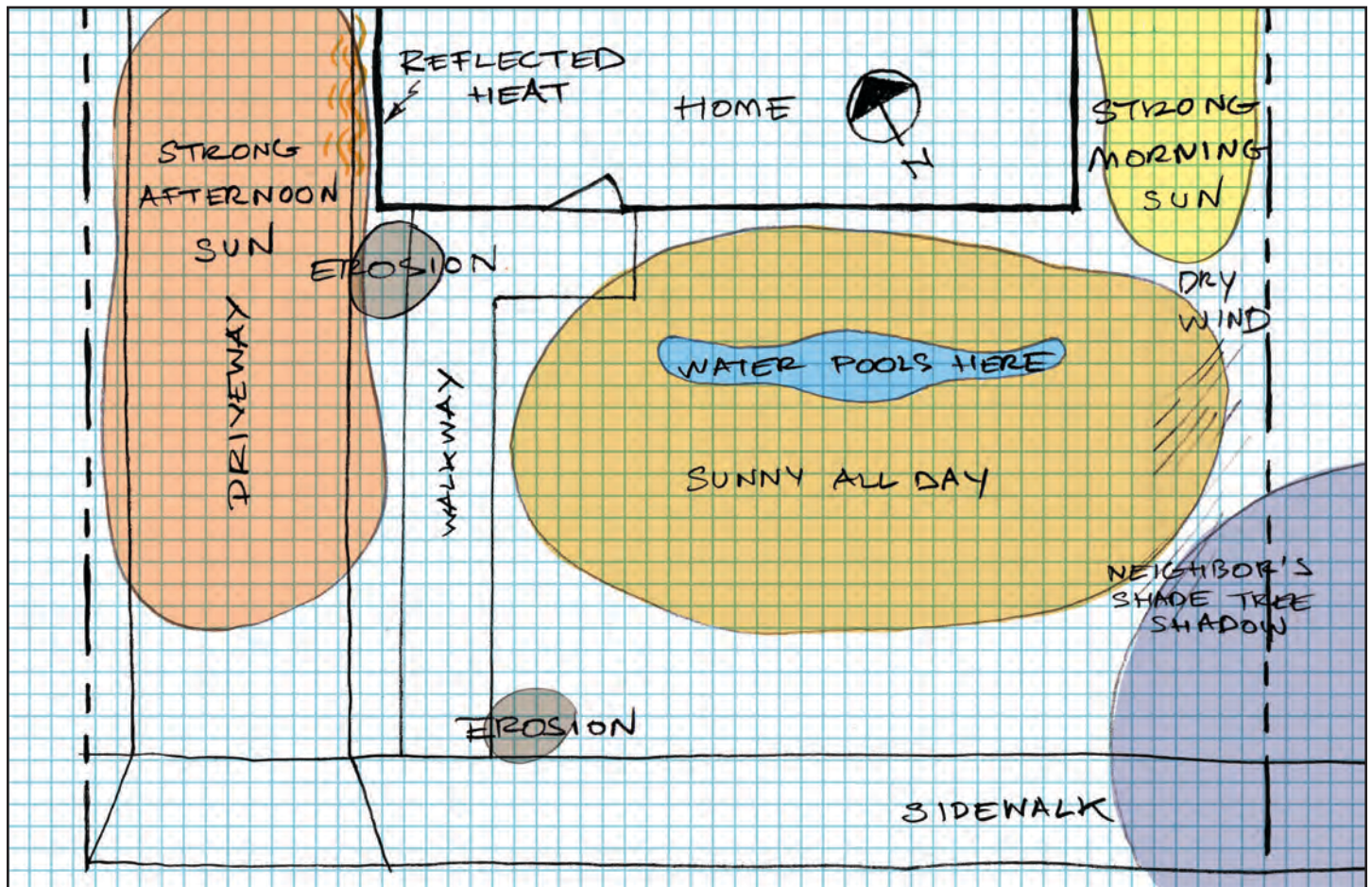
Mind The Foundation

Be sure to mark your doors, windows and footprint of your building on your plans. You will be grading the soil away from foundations and locating your mounded up berms and swales 5' - 10' away from the foundation of the buildings and 3' from edges of the walkways or neighbors.

Need help finding dimensions? maps.google.com

Look at Google Maps for help placing building and trees on your property. Just type in your address, zoom in, and use the Satellite view.

Consider your Microclimates



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Microclimates are **Climate** factors **Particular** to your garden.

Every garden has areas where some plants will grow well and others will die. Structures, walls, fences, and other plants all can affect the amount of sun and shade in a garden. And every garden is completely different, even if it is located in the same general climate zone. There will be hills and hollows in your front yard that may collect cold air or, because your property is sloped, you don't get frost when your neighbors do.

Microclimates may differ significantly from the general climate of an area. You need to map these microclimates, and the first step is to walk around your property during the day and observe it more closely. Grab a chair, sit down outside, and start thinking about your design priorities.

Note Sun and Shade

Mark the areas that receive sun all day and areas that are shaded all or part of the day. Also note which areas receive only partial sun, maybe just a few hours of direct morning sun, mid-day or in late afternoon.

When you start choosing your plants, make sure to select those that are appropriate to your garden's sunlight patterns. Plants marked as "full sun" will not be happy in full shade or vice versa.

Are there other things you observe in your garden? Mark it on your Site Plan!

Plants Speak Latin

Did you know that many plants have the same common names? If you ask for a plant by their common name, you might end up with something completely different than what you want. The best way to order plants is to use the Latin botanical name; that way there is no miscommunication.

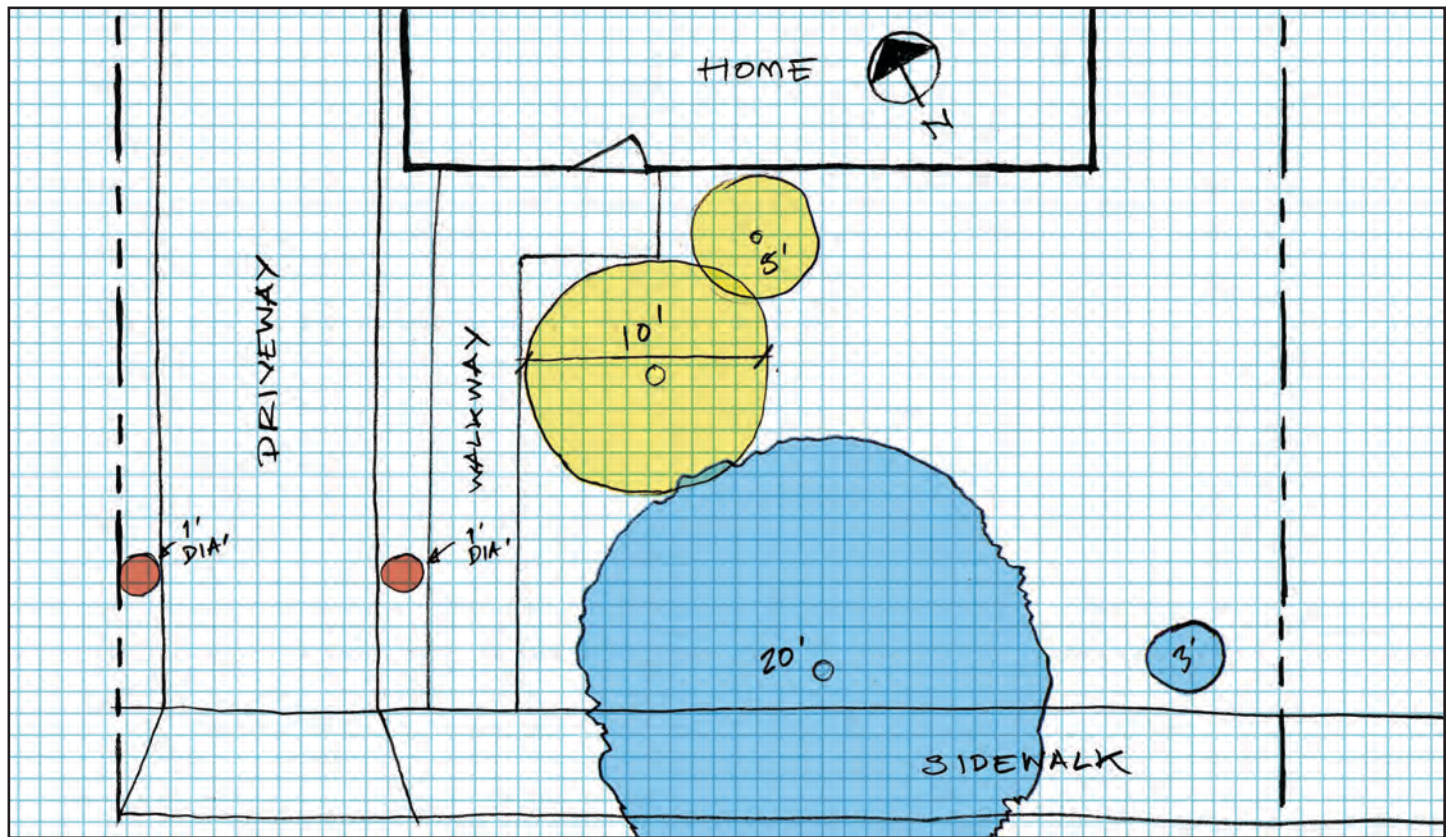
When you go to the nursery asking for plant identification, be sure to walk away with both the Latin name and the common name, so that you can conduct your research and be assured of selecting the right plant for the right place.

What About Plants You Keep?

Everyone has plants that are next to the grass area they are removing. Now is the time to decide which of these plants will work well in your new garden and which should be removed. If you don't know the name of the plant, take a photo and leaf/flower with a bit of stem attached to a local nursery to get some assistance.

Remember that trees and large shrubs that have been dependent upon the water you have been applying to your grass will now need a bit of extra love and care since you are removing the grass. Consider putting these plants on a separate hydrozone so they can get a little extra water (see p. 35).

Make a **Hydrozoned** planting plan



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A Guide to Plant Water Needs ● Moderate ● Low ● Very Low

(see p. 31):

Group Plants by **Water Needs** and plan ahead for **Maturity**.

Proper plant placement, considering mature plant size, should limit the need for future pruning and reduce the amount of maintenance required in the long run. Natural forms are encouraged for habitat value, but fire prevention does require pruning and removal of dead, diseased, damaged and deranged plant material.

Scale Your Plants for Maturity

Make circles on your plan the size of the plant at maturity using a 1/4" = 1' scale (each box = 1').

Practice using colored paper to indicate the water needs of the plants. It will make it easier to lay out the planting plan in irrigation zones if you easily can move around the paper circles.

See on the plan how big the (MODERATE water use) 20' wide canopy trees will be at maturity. Will this change the microclimates in the future? Think ahead if your new trees will cover a whole yard that's now sunny.

Play By The Hydrozone Rules

- Plants with similar cultural and water requirements should be planted together in order to irrigate them efficiently.
- Consider the soil, water needs, sun/shade and temperature requirements for each hydrozone.
- Each hydrozone should be watered by a separate irrigation valve.
- Do not mix plants with different water requirements in the same hydrozone.
- Do not mix different irrigation types in the same hydrozone.
- The irrigation of each hydrozone should have matched precipitation (every nozzle needs to emit the same gallons per hour for drip).

Root depth matters

Make notes about the root depth of the plants when you are placing them on your plan. Trees, with their deep roots, will be irrigated less frequently, but for a longer time. Groundcovers with shallower roots will require more frequent watering. **Keep trees and groundcovers on separate hydrozones.**

Small plants are mighty

Once planted in a properly prepared bed, and watered wisely, small plants establish themselves more vigorously than plants raised in larger containers. But just because you've selected small plants, doesn't mean you need to buy more than the space allows when those plants reach maturity!

How much **Water** does your garden **Need**?

Evapotranspiration (ET) is the key to watering plants.

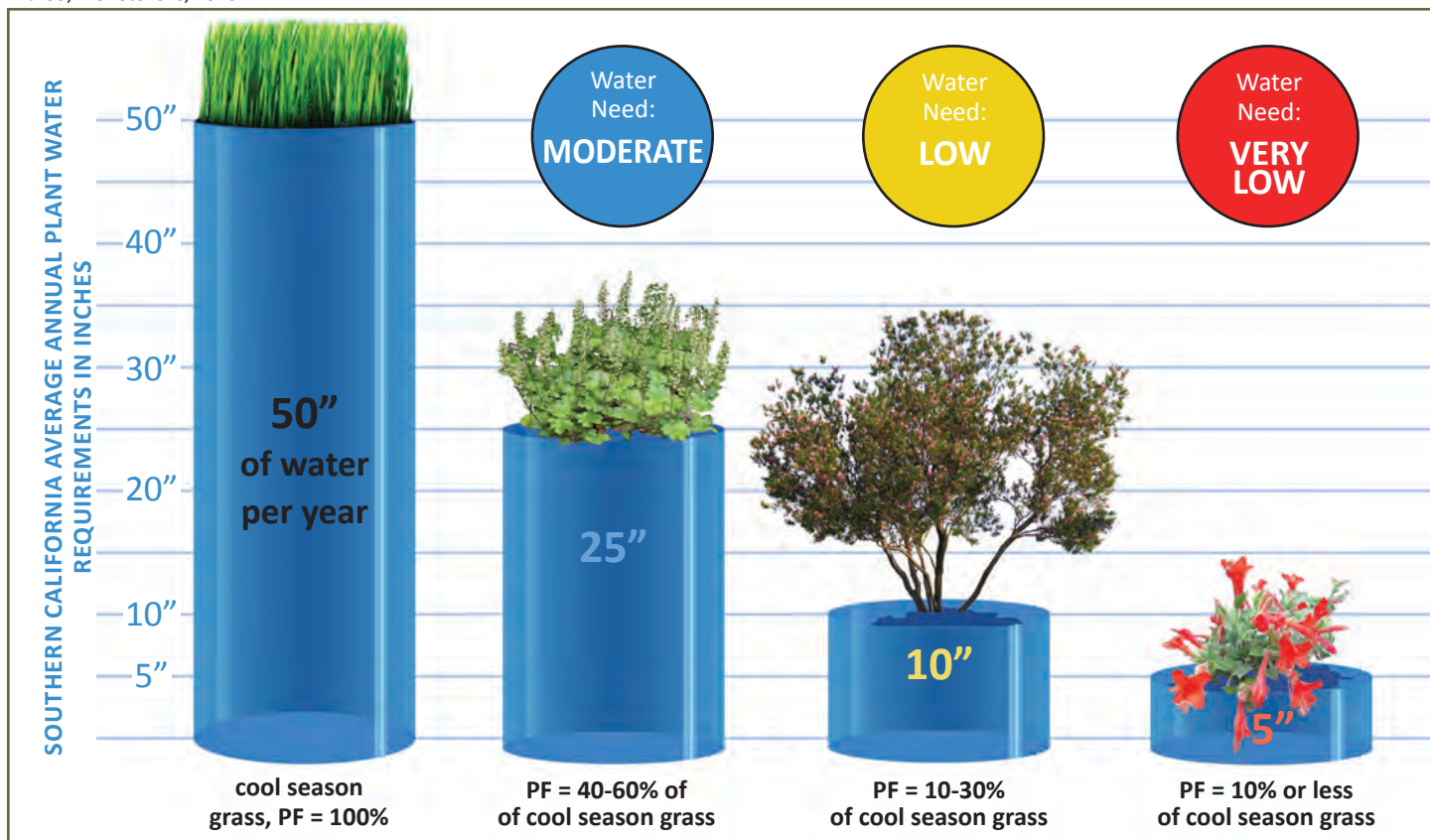
Evapotranspiration (ET) can be thought of as “reverse rain.” ET measures the inches of water being transferred over some period of time from the land to the atmosphere by evaporation from the soil and other surfaces and by transpiration (sweat) from plants. ET is a quick way to explain environmental and climate conditions, especially solar radiation (sunshine or cloud cover). Many plants need more water in the summer, when the sun is high and days are long; winter days are shorter and often rainy or overcast, so many plants need less water.

ET therefore, explains how much water plants really need and when they need it; critical information for planning irrigation and managing the **Soil Moisture Account** (see p. 65).

Plant Factor (PF) describes the specific water need of each plant in your landscape. PF can be determined by gathering information about a plant and then comparing it to the amount of water needed by cool season grass growing in your climate zone. PF is expressed as a percentage of the water needed by cool season grass. Plant watering needs, include: **VERY LOW at 10%**, **LOW at 20%**, **MODERATE at 50%** and **HIGH at 100%** (cool season grass).

Landscape Water Need takes into consideration the effects of irrigation efficiency (IE Percentage) (see p. 66) and square feet of landscaped area (SF) to figure out how many gallons of water a particular landscape would require, given its climate zone (ET Inches) and plant selection (PF Percentage).

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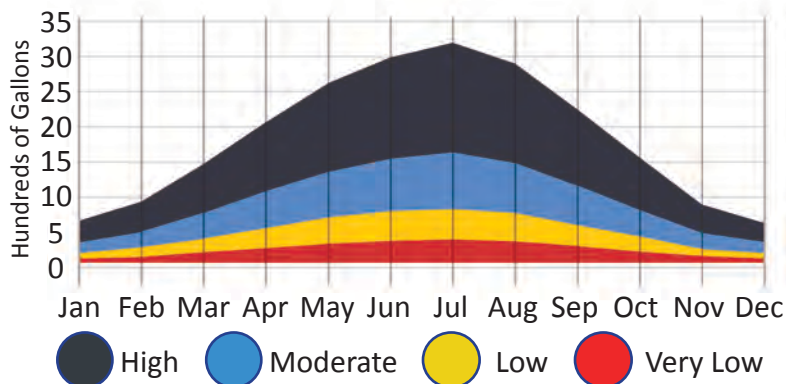
Reduce Landscape Water Need: Understand ET, PF and IE

Every plant choice gives us the opportunity to reduce the Landscape Water Need.

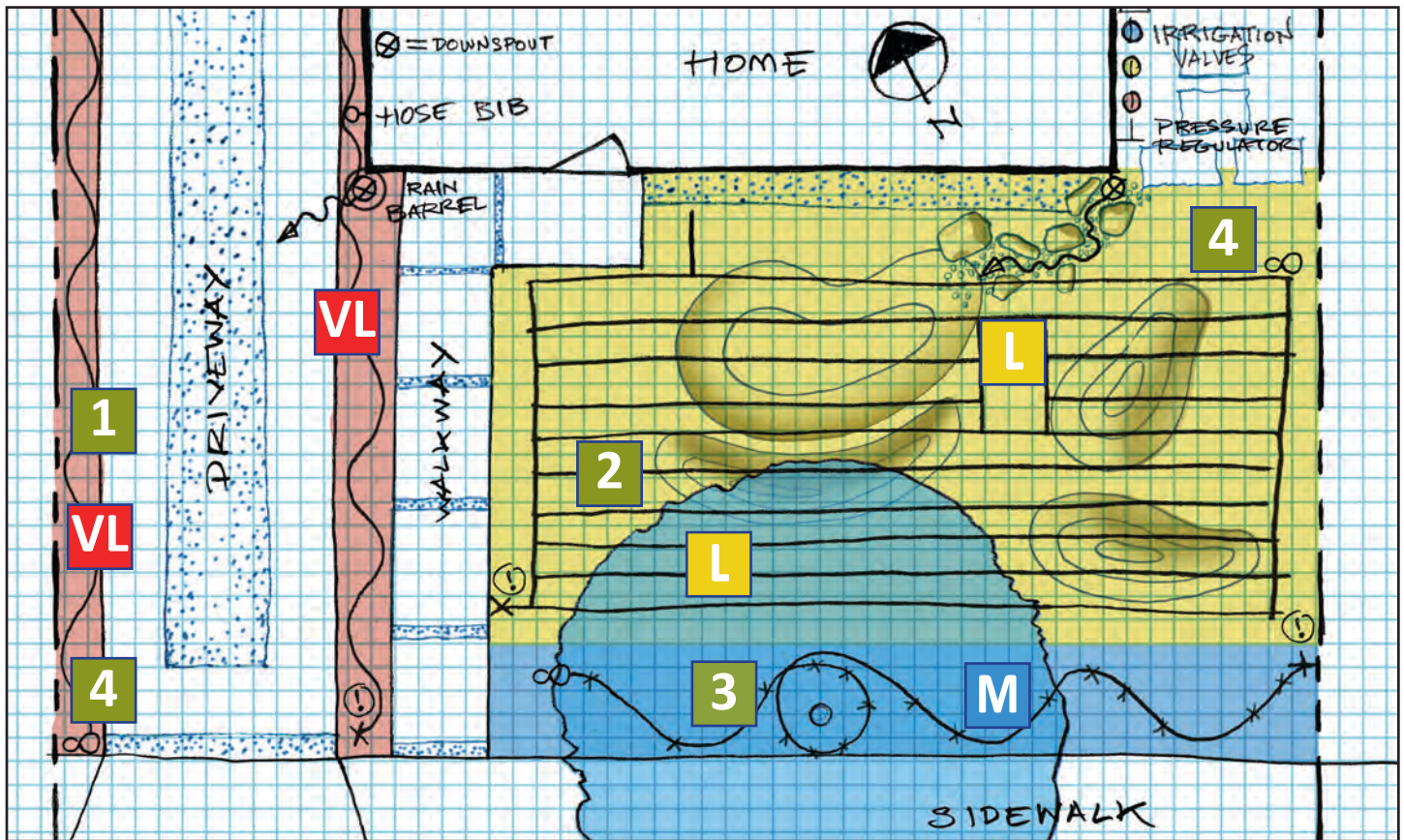
In our 875 SF Front Yard (see p. 8) replacing **HIGH Plant Factor** cool season grass with **VERY LOW Plant Factor**, climate-appropriate plants saves almost 32,000 gallons of water annually, before changing to drip irrigation for higher irrigation efficiency (IE) (see p. 37).

Converting to drip irrigation with a higher IE saves even more (up to 20%)!

875 SF Landscape Water Need By Plant Factor



Match Irrigation to new Hydrozones



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Adjust Valve Zones to Hydrozones.

Which sprinkler heads go on at the same time and what kind of plant material are they irrigating? Get ready to make changes to your irrigation system in order to accommodate both the new grading and the new plants you are introducing into your garden. In our example garden, we have three different hydrozones.

VL **VERY LOW** water use plants in the strips along the driveway will have **in-line drip irrigation in a random pattern** around each plant. Each drip emitter is 1 GPH.

L **LOW** water use plants in front yard dry creek and berm areas will have an **in-line drip irrigation line in a grid pattern**; the grid pattern is better for situations where you want to achieve a more uniform wetting pattern that works especially well with groundcovers and high-density mixed planting. Each drip emitter is 1 GPH, spaced 18" apart, in rows spaced 18" apart.

M **MODERATE** water use plants along the sidewalk will have

an **on-line or "point source" drip irrigation line in a random pattern** around each plant; note that the tree gets special attention with an extra ring to accommodate its expected growth. Each drip emitter placed in the blank tubing is 1 GPH.

∞ **END FIGURE "8" FLUSH-OUT VALVE**

⌚ **TATTLE TALE** (see p. 34)

— **ON-LINE DRIP LINE** (see p. 34)

— **IN-LINE DRIP LINE** (see p. 34)

■ **MULCH OR GRAVEL**

Images courtesy of Rain Bird Corporation



On-line drip emitter inserted into blank tubing



In-line drip grid emitters are built into tubing



Tree drip ring needs to expand as tree grows



Dripline end figure 8 can double as a flush-out valve