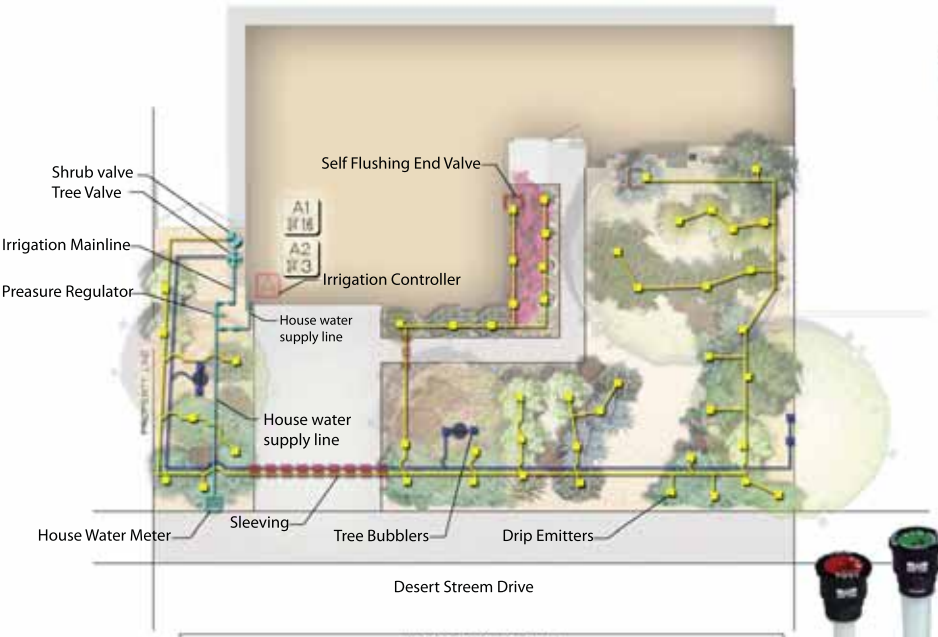
Cooperative Landscape Water Management Program



Desert Streem Drive

Rainbird Drip Controll Zone Kit

Rainbird 1400 Series Bubbler

Toro Precision Series Spray Nozzles

BASIC IRRIGATION DESIGN FOR THE COACHELLA VALLEY

As all residents of the Coachella Valley know, our desert is a dry and arid place with a very harsh climate. Only a select few plants and animals have adapted to life in the desert, where water is scarce. Water is life in the desert, and a healthy attractive yard reflects that. Water is extremely important to life in the desert, whether it is to the people, plants, or animals living here. Some of the plants that have adapted to the valley have a very unique character and are extremely beautiful when given a little supplemental water from a properly installed and well maintained irrigation system. Irrigating, or delivering water to, plants allows for hundreds of plants to live here which could not live here under natural conditions.
A water efficient irrigation system is one of the most important aspects of an attractive and viable landscape. An irrigation system can be divided up into four main sections; the controller, the valve, the piping, and the emission devise (spray head, rotator head, drip emitter, etc.). Each one of these sections is very important to deliver the water to the plants, and it is how these sections interact with each other that will determine how efficient the system is as a whole.

SHRUB DRIP EMITTERS

Irrigating shrubs has come a log way from the old non-efficient spray systems of the past. Today, there are a variety of different devices to place water at the plant root zone where shrubs need the water. This method of irrigation is much more efficient because it does not irrigate the areas between shrubs which do not need water, and is also not affected by the wind. This is the preferable method of irrigating shrubs.
To design your new drip system, you must know the water requirements of the plants you will be irrigating. This information can be found in CVWD's book 'Lush and Efficient' or the Sunset 'Western Garden Book'. You can also ask your local nursery. After you know the water requirements of the plants, you can determine what emitters to place at each plant. The "low" water rated plants typically can be irrigated with a 1 gallon per hour emitter, and the "moderate" water rated plants can be irrigated with a 2 gallon per hour emitter. By doing this, you will allow the correct amount of water for each plant and run less of a risk of over-watering or under-watering the plants.
It is common practice to use 1 single outlet emitter per shrub. This emitter should be placed within 12" of the rootball of the plant. If there are slopes in the yard, the emitters shall be placed on the uphill side of the plant so the water can run down to the plant, not away from the plant.

TREE BUBBLERS

Trees can be irrigated similarly to the method described above for shrubs; however, trees typically require more water than a small emitter can provide. "Bubblers" will provide the quantity of water needed in a very efficient way. Typically, two bubblers placed on either side of the tree at 12" from the root ball will allow enough water for the tree to thrive.
There are many different types of bubblers that can be used, such as adjustable bubblers, fixed flow bubblers and xeri-bubblers. It is important to note that tree bubblers should be separated from the shrub and lawn irrigation with a separate valve.

PIPING

The preferred method of connecting the tree or shrub heads and spray/rotator heads to the valves is through PVC piping. The pipe should be run from the automatic valve to each individual shrub or tree and irrigation head location as shown in the irrigation plans above. The pipe should be buried at least 12". The pipe should be ¾" Schedule 40 PVC pipe, and the fittings should be deep socket schedule 40 fittings to provide a system that will last a long time with minimal maintenance. There are other methods and systems that could be used, but the PVC system appears to hold up the best over time.

AUTOMATIC VALVES

There are different automatic control valves for different applications. Most residences will use an "anti-siphon" valve that must be installed 12" above the highest irrigation head in the yard. The size of the anti-siphon valve can either be ¾" or 1", depending on the amount of water being used.
It is important to design your irrigation system into separate zones that will be connected to separate valves. Creating the different zones is as simple as separating the shrubs, trees and lawn so they are controlled by separate valves. You will also want to zone the shrubs that are located in predominantly shade areas separately form those that are consistently in full sun all day. By doing this, you will have the ability to fine tune your irrigation system and reduce the possibility of over-watering or under-watering plants in shade or sun. Remember, the more water you save, the more money you will save. This is why zoning your system with separate valves is so important.
The valves used to irrigate the shrubs and trees should be equipped with a pressure regulator and a wye filter following the valve. This will allow proper operating pressure for the emitters and bubblers and will also filter any particulates out before they get into the irrigation system and clog the emitters.
A ball valve or gate valve should be installed between the irrigation valves and the connection to the main water supply. This will ensure that you have a main water shut off for the irrigation system, should there be a problem and repairs need to be made.

CONTROLLERS

The controller is the "brain" of the irrigation system. The controller is connected to the valves and tells the valves when to turn on and off. There are simple inexpensive controllers that only turn the irrigation system on and off at the programmed times and dates, and then there are expensive computerized systems that will run the irrigation system as well as lighting and pool equipment. The problem with computerized controllers is that you will always be adjusting the watering times and start times for the changing temperatures every month. If the adjustments are not made, you might be over-watering or under-watering your yard.
The newest technology for irrigation controllers is the "smart" automatic adjusting "evapo-transpiration" controller that determines the weather conditions and automatically adjusts the run times for you. The "Aqua-conserve" is a great controller you can get from CVWD for a discounted price that has been programmed with the historical climate conditions of the Coachella Valley and will automatically adjust the irrigation run times when the climate changes. If you purchase the controller through CVWD, they will send a representative to your house to install and program the controller for you.

SUMMARY

With all of the different irrigation methods and a variety of products types, it could seem a bit overwhelming to design and install an irrigation system for your yard. With the methods described above, you will be able to design a very efficient irrigation system that will last for years to come and perform with minimal maintenance. The price of water is rising, and it will pay to be more conservative with your irrigation water. Remember that water is life and your yard reflects that. You can help make La Quinta the most attractive and water efficient city in the valley by being a leader in smart irrigation design.

Rain-Bird Xeri-Bug Emitters

Rain-Bird Pressure Regulators

Hunter In Line Check Valve

IRRIGATION LEGEND

SYM	MANUFACTURER & MODEL	PSI	GPM	REMARKS
■	RAINBIRD XB-20PC-1032 EMITTER PLACE ON PRF-FRA 12" POLYFLEX RISER	20	2 GPH	ONE (1) PER SHRUB
■	RAINBIRD 1402 BUBBLER PLACE ON SCH 80 RISER	30	.5 GPM	TWO (2) PER TREE
⊕	RAINBIRD XACZ-075-PRF-BF CONTROL ZONE KIT			
	RAINBIRD ASVF ANTI SIPHON VALVE			
	FEBCO BRASS PRV-1 SERIES PRESSURE REGULATOR SET TO 50 PSI			USE WHEN WATER PREASURE IS OVER 80 PSI
	DIG PRODUCTS 18-038 SELF FLUSH END VALVE			PLACE AT THE END OF DRIP LINES
	NIBCO T-FP-600 FULL PORTED BALL VALVE			
A	AQUA CONSERVE ET BASED SMART CONTROLLER CONTACT CVWD FOR CONTROLLER REBATE PROGRAM			
M	HOUSE WATER METER			
	MAINLINE SCH 40 PVC PIPE 1" SIZE			
	SLEEVING SCH. 40 PVC PIPE 2 TIMES DIA. OF IRRIG. PIPE, UNLESS OVERWISE NOTED, UNDER ALL HARDSCAPE.			
	LATERAL LINES CLASS 200 PVC PIPE 3/4" SIZE			
A1 .5	VALVE STATION GPM VALVE SIZE			

NOTES:
1. THESE PLANS ARE DIAGRAMMATIC.
2. MAINLINE AND VALVES ARE SHOWN IN HARDSCAPE FOR CLARITY ONLY.
3. REFER TO PLANTING PLAN TO DETERMINE WHICH EMITTER SUPPLIES WATER TO WHICH PLANT BASED ON THE PLANTS WATER USE.
4. ADD CHECK VALVES AS NEEDED IN LOW AREAS AND ENDS OF LINES

MP Rotator

Aqua Conserve Smart Controller

Rainbird ESP-SMT Series Smart Irrigation Control System

Toro T-PMR25-LF & T-PMR40-MF Pressure Regulators

Irrigation Improvements