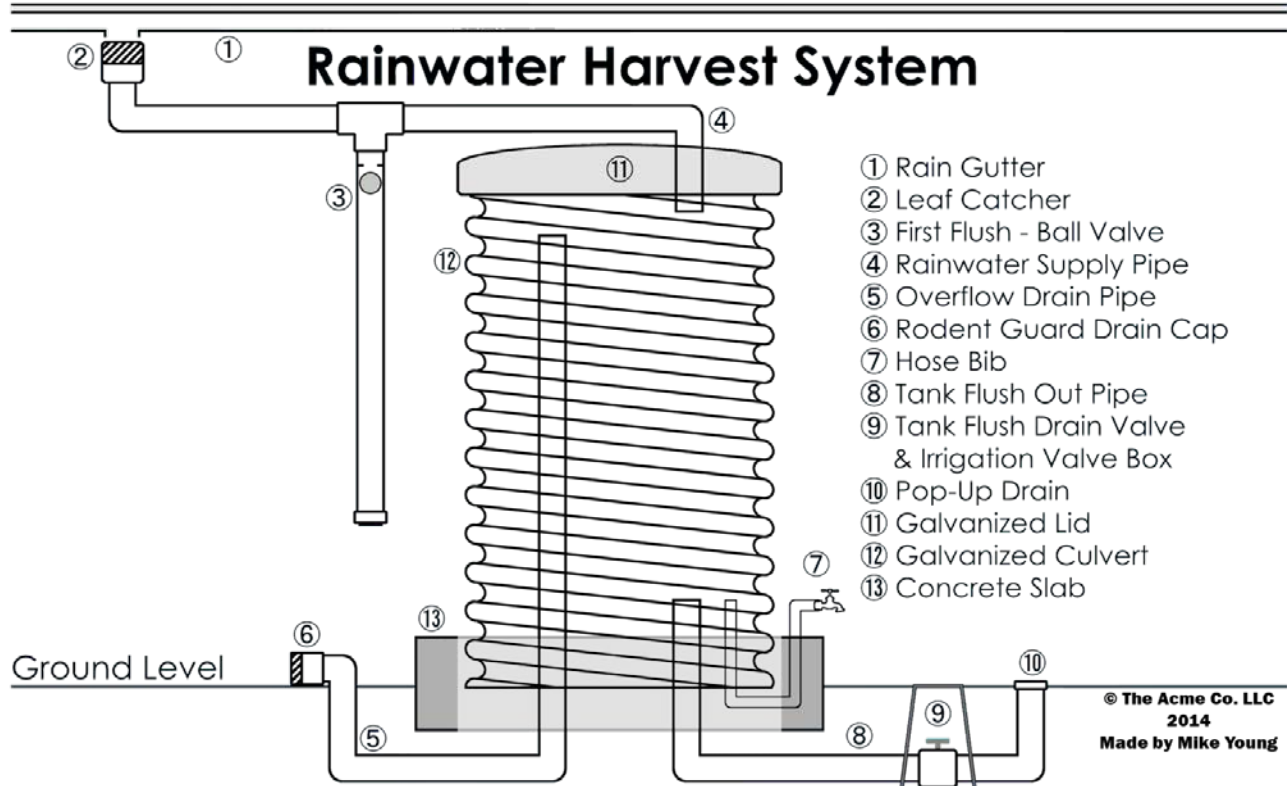


Rainwater Harvesting And Driveway-Road Culverts

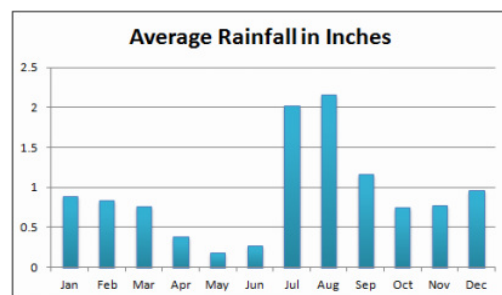


<u>Plumbing</u> 4 Inch PVC Pipe 4 Inch PVC Elbows and Couplers Service Box and Valve Rodent Guard or Drain Cap	Flush Out Valve Irrigation Valve Pop-up Drain	<u>Hose Bib</u> 3/4" Hose Bib 3/4" Female Reducer 1" PVC Pipe 1" PVC Elbows	<u>Concrete Base</u> Concrete Forms Ideal Mix Portland cement Re-Bar
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* Standard Culvert Length 20 Ft.		*Custom Length Cuts \$30.00 Per Cut		
Diameter	Price per Ln. Ft.	Gallons Per Ft.	Cost per 20'	
12"	\$ 9.95	5.87	\$ 199.00	-
18"	\$ 14.38	13.22	\$ 287.60	-
24"	\$ 18.79	23.50	\$ 375.80	
36"	\$ 27.65	52.87	\$ 553.00	
48"	\$ 37.60	94.00	\$ 752.00	
60"	\$ 46.44	146.87	\$ 928.80	

Dimple Bands 12" \$16.50 18" \$19.00 24" \$22.00

Roof Sq.Ft.	Inches of Rain	
	1/2	1
500	156	312
1000	312	623
1500	468	935
2000	623	1247



Installation Choices

In southern Arizona, the majority of our rainfall comes in the form of brief, torrential downpours during our monsoon season. It is important to plan your water harvest system so that it can accommodate the large volume of water in a short period of time.

- Larger pipes allow a higher volume of water through the system more quickly. It is not uncommon to use 3" and 4" PVC pipe to supply the storage culvert.
- Larger culverts ensure that enough water can be stored to last through out the dry season. When choosing what sized to make the culvert, it is important to consider how much water your roof collects as well as how much you will need throughout the year.
- Heavy rainfall collected by a large roof can very quickly (in a few minutes) overflow a smaller storage culvert. Using an overflow drain pipe to direct any excess water to collection swells or tree wells and then to drainage washes will help ensure that your system maximizes the use of rainwater and reduce erosion.

Rainwater Harvest System Components

Rain Gutter – The main purpose of a rain gutter is to protect a building's foundation by capturing the water collected by the roof and channeling it away from its base. The gutter also helps to reduce erosion, prevents leaks in basements and crawl spaces, protects painted or stained surfaces by reducing exposure to water, and provides a means to collect rainwater for later use.

Leaf Catcher – A leaf catcher is a catchment device designed to capture the water from the rain gutter. The leaf catcher has a mesh screen cover that prevents leaves and debris from entering the Rain Harvesting system which improves water quality and reduces tank/cistern maintenance.

First Flush – First flush water diverters improve water quality and reduce rainwater culvert maintenance by preventing the first flush of water, which may contain roof contaminants, from entering the rainwater culvert which helps ensure cleaner water is available for use. Downspout First Flush Diverters, such as the 3" and 4" kits, are installed at each downspout that supplies water to the rainwater culvert.

We carry a floating ball valve system which is a simple automatic system that does not rely on mechanical parts or manual intervention. As the water level rises in the diverter chamber, the ball floats, and once the chamber is full, the ball rests on a seat inside the diverter chamber preventing any further water entering the diverter. The subsequent flow of water is then automatically directed along the pipe system to the tank/cistern.

Rainwater Supply Pipe – The rainwater supply pipe funnels water from the leaf catcher, into the first flush and finally into the rainwater culvert. The supply pipe is usually routed under the tank and through the concrete slab. The supply pipe should be made from 3" or 4", PVC or ABS pipe and can be painted to provide UV protection.

Overflow Pipe – The overflow is a section of pipe that sheds excess water from your rainwater storage when rain exceeds the tank's capacity. The overflow pipe should have a capacity equal to or greater than the inflow pipe. The pipe should divert the overflow into a drainage swell which allows the excess rainwater to infiltrate into the soil at depth over time. This excess water can then be used by plants or becomes groundwater. It is important to include a drain cap, pop up, or mesh screen at the end of the pipe to prevent rodents and animals from entering and contaminating the collected water.

Hose Bib – The primary access to a rainwater culvert's supply is through a standard ¾" hose bib. The ¾" size is preferred over the ½" size because water is gravity fed. The ¾" hose bib allows the water to flow more easily out of the culvert. The Hose bib is connected to ¾" PVC pipe with a ¾" female adapter using plumbers (Teflon) tape to ensure there is no leaking.

Tank Flush Out Pipe and Drain Valve – The tank flush out pipe is installed so that the rainwater culvert can be drained quickly. This ensures that the culvert can be quickly accessed in the event that maintenance or repairs must be completed or the hose bib clogs and requires cleaning. The Drain valve should be accessible from the surface or via an irrigation valve box. A pop up valve should be placed at the ground surface and connected to the end of the pipe.

Culvert and Concrete Slab – The galvanized steel culvert is embedded into a concrete slab. Depending on the size of the culvert, it is advisable to reinforce the concrete with re-bar. (example: 60 inch culvert requires a 7 foot diameter 12 inch thick concrete slab. That's 1.5 cubic yards of redi-mix.)When the concrete slab has cured the interior concrete and first several inches of the culvert and the culvert seams should be sealed using a liquid/gel rubber sealant.