



JAY R. SMITH MFG. CO.®

# case study

## DRIP IRRIGATION USING A RAINWATER HARVESTING SYSTEM THE WATERS COMMUNITY, PIKE ROAD, AL



*The Gerachis' Home - Backyard Drip Irrigation for the vegetable, herb and flower garden using harvested rainwater.*

**The Situation:** Andrew and Cathy Gerachis, homeowners at The Waters community in Pike Road, Alabama were looking for a solution to prevent flooding in their backyard and a way to economically irrigate their lawn and vegetable, herb, and flower garden.

The compact footprint of their house combined with the high clay content of the local soil created rainwater runoff problems for them and several neighboring homes. During large rainfall events, the runoff from the gutters would cause “ponding” in the yard that would persist for several days.

**The Resolution:** Cathy Gerachis, Director of Landscape Architecture, Goodwyn, Mills, and Cawood, Inc., an architectural firm located in Montgomery, Alabama, was familiar with rainwater harvesting.

In her work as a landscape architect, she was aware of rainwater harvesting used in landscape design with LEED® certification.

Having used rainwater harvesting on her professional projects, she wanted to do the same on her home. She knew that this ‘green’ idea

would not only save on her municipal water bill and give her available water in times of draught, but would resolve her runoff and ponding problem. In addition, it would create an efficient way to irrigate her lawn and garden.

Living in a progressive and innovative neighborhood like The Waters, she talked to her homebuilder about the idea. They agreed that it would be a benefit for her home and would help showcase The Waters. The builder, Andrew and Dawson, of Pike Road, AL researched the idea. Their investigations lead them to another local company, Jay R. Smith Mfg. Co., Montgomery, AL.

Jay R. Smith Mfg. Co., in cooperation with their partners Rainwater Management Solutions and WISY AG, was the first U.S. Company to offer a comprehensive product line of rainwater harvesting filters and accessories.

Rainwater harvesting systems are applicable to most all types of buildings providing ready-to-use, stored rainwater for landscaping, lawn irrigation, car washing, janitorial use, laundries, fire protection, or other non-potable uses.

The concept of harvesting rainwater is simple; rainwater is collected from a rooftop. The harvested rainwater is conveyed through the gutters and piping to a filter (Figure Number RH9520-04, Vortex Rainwater Fine Filter) that

removes the debris from the rainwater. From the filter, the collected rainwater enters the concrete storage tank through a smoothing inlet (Figure Number RH9530SI). The smoothing inlet prevents the agitation of sediment at the rainwater inlet into the storage tank and it aerates the water to keep it from becoming foul smelling. The stored rainwater is now ready for use. Harvested rainwater is extracted from the cleanest part of the tank, just below the surface of the water using the floating filter (Figure Number RH9532) and pump. The end result is ph-neutral, soft, filtered water which is naturally well suited for irrigation.

In order to size the system properly, it was important for Andrew and Dawson to accurately calculate the surface area of all roof sections where rainwater is to be collected. In this case, the Gerachis' wanted to maximize their rainwater harvesting potential. They decided to capture rainwater from the entire roof area, the front and back porches, and the carport. The total collection area equaled 2,151 square feet.

During the design process it became apparent that the rainwater storage tank would be a pivotal component of the system. The Gerachis' had planned for an elaborate backyard garden, so the capacity of the concrete storage tank needed to meet their irrigation needs. In the end, a 2,000 gallon capacity tank was buried in the ground to leave the entire backyard open for gardening.



*Gerachis' Backyard: Piping from the home to the vortex fine filter, then to the concrete storage tank.*



All of the rainwater collections piping trenches were dug and the piping was installed to the vortex filter and into the storage tank. The system was then tested and trenches were backfilled.

To prevent the concrete storage tank from “floating” a one-foot layer of concrete and a one-foot flange were poured before dirt was backfilled over the tank.

The harvested rainwater is used strictly for outdoor needs. It provides water for two hose bibbs and several hundred feet of drip irrigation lines. Proper design for the intended use is always important in rainwater harvesting applications. As Cathy Gerachis said, “We looked at several alternatives, but they were all so wasteful. We could have drilled a well, but that would have exceeded our demand, and personally I did not like the idea of wasting water.”

**There are many benefits of using Rainwater:**

- It is free; the only cost is installation and use.
- It lessens demand on the municipal water supply.
- It saves money on utility bills.
- It makes efficient use of a valuable resource.
- It diminishes flooding, erosion, and the flow to stormwater drains.
- It can be used to recharge ground water.
- It reduces the contamination of surface water with sediments, fertilizers and pesticides from rainwater run-off resulting in cleaner lakes, rivers, oceans and other receivers of stormwater.
- It is good for irrigation and plants thrive because stored rainwater is free from pollutants as well as salts, minerals, and other natural and man-made contaminants.
- It adds life to equipment dependent on water to operate, as rainwater does not produce corrosion or scale like hard water.
- It can help you achieve LEED® Green Building Rating Credit under Water Use Reduction, Water Efficient Landscaping, and Storm Water Management.

The Gerachis’ home backyard now features a multitude of beautiful plants. They have vegetable, herb, and flower gardens along with various flower beds, shrubs, and trees.

**About The Waters Community:**

The Waters is a neighborhood community nestled in the town of Pike Road, Alabama, located just outside of Montgomery. The hundreds of acres include expansive rolling greenways, towering oaks, and over five miles of shoreline wrapping around the 200 acre Lake Cameron. Around the neighborhood you will find everything from manicured parks to mid-block greens.

Other amenities abound, such as, a pool and community pavilion, boathouses, piers, tennis and basketball courts, a local market, dentist office, and a YMCA.

The homes are built with traditional southern architecture and premium green-building materials such as, metal roofs, radiant windows, geo-thermal heating and cooling units and spray foam insulation. New efficiency methods such as rainwater harvesting are also used to lessen utility bills and limit water runoff. Other construction techniques such as, deep-anchored raised foundations and ample eight foot porches are used throughout the community.

Whether your ideal is found in a grand mansion or a cozy cottage, a classic brownstone or a cozy city-cool loft, you’ll discover homes are as detailed as any other historic examples. When a neighborhood is built from traditional models, special things begin to happen. A sense of community develops and a social network begins. The Waters is a quality of life where people are brought together to form a sense of community for all ages.

The rainwater harvesting installation at the Gerachis’ home is almost unnoticeable. Only the top of the vortex filter is visible. Andrew Gerachis, Assistant Director for Marketing and Sales at The Waters states, “We wanted to leave the vortex filter visible because it makes for a great conversation piece, and that is really what this is about, educating everyone you can on how important it is to re-use what nature provides”.

For more information on Rainwater Harvesting Products, **visit** [www.jrsmith.com](http://www.jrsmith.com)

