

Five Simple Steps to Installing a Water-Saving Drip Irrigation System

Planning and Getting Started

When installing a water-saving drip irrigation system, thoughtful planning can make your project simpler and more efficient. We've outlined five simple steps to help you choose the right products and ensure a successful installation tailored to your landscape's unique needs. Compared to conventional sprinkler systems, drip irrigation is more affordable,



easier to install, and can reduce waterborne pests and fungal diseases. With drip irrigation, water is applied in precise quantities (measured in gallons per hour) directly to the root zones of plants. This improves plant health, conserves water, and reduces weed growth. Follow these steps to enjoy the benefits of a custom-designed drip system.

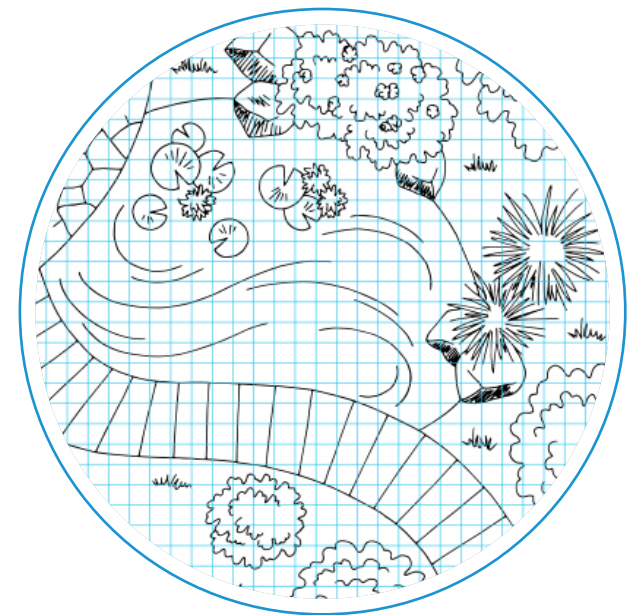
Step 1

Sketch the Area

Create a detailed top-view sketch of the area you plan to irrigate. Include the layout of your home, retaining walls, paved areas, and water sources. For accuracy, measure the area and use graph paper, with each square representing one foot (for residential landscapes) or a 1" = 10' scale.

Follow these tips for sketching:

- **Measure the area** by going outside and recording dimensions.
- **Draw an accurate top-view map** showing plants and the location of water sources.
- **Plan your system layout**, noting the location of emission devices like drippers or sprayers.



Step 2

Identify and Classify Your Soil Type

Soil plays a critical role in your irrigation system, acting as the final link in how water is absorbed, distributed, and utilized by plants. Understanding your soil type is essential for selecting the right drippers, sprayers, and spacing to ensure optimal water delivery and prevent waste.

- **Sandy Soil (Light-Textured):** Composed of large, coarse particles, sandy soil has a loose structure that crumbles easily when dry. It drains quickly but retains little moisture, requiring more frequent watering.
- **Loamy Soil (Medium-Textured):** A balanced mix of sand, silt, and clay, loamy soil holds its shape when compacted but crumbles under light pressure. It offers excellent drainage, moderate moisture retention, and efficient water absorption.
- **Clay Soil (Heavy-Textured):** Made of fine particles that bind tightly, clay soil feels sticky when wet and molds easily. It absorbs water very slowly, retains moisture for long periods, and can become waterlogged without proper irrigation management.

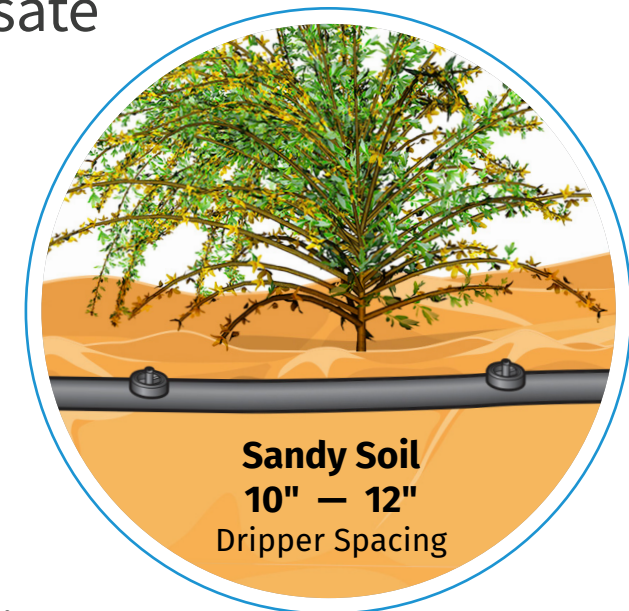


Step 3

Optimize Dripper Spacing by Soil Type

Calculate water use by adding the total flow rate of all drippers and sprayers in each section or zone to ensure efficient water delivery throughout your landscape.

- **Sandy Soil:** Drippers should be spaced 10 to 12 inches apart, making them ideal for higher flow rates, such as 4 GPH drip emitters, or a dripline with built-in emitters spaced 12 inches apart to compensate for rapid drainage.
- **Loamy Soil:** Drippers spaced 16 to 18 inches apart are ideal for moderate flow rates (1–2 GPH) or driplines with 18-inch built-in emitters, balancing water retention and drainage.
- **Clay Soil:** Drippers spaced 18 to 24 inches apart. Use low flow rates like 0.5 GPH drip emitters to prevent water pooling and ensure slow, even absorption.





1/2-Inch Dripline with 1-GPH Pressure-Compensating Built-In Emitters Spaced at 12 or 18 Inches

1/4-Inch Microline™ Dripline with Built-In 0.5 GPH Emitters Spaced at 6, 9, or 12 Inches



1-GPH Pressure-Compensating (PC) Dripper with Non-Drain Check Valve, Black

.58 GPH Pressure-Compensating (PC) Dripper with Non-Drain Check Valve, Brown



1-GPH Pressure-Compensating (PC) Drip Emitter, Black
2-GPH Pressure-Compensating (PC) Drip Emitter, Green
4-GPH Pressure-Compensating (PC) Drip Emitter, Red

1-GPH Flag Drip Emitter, Black
2-GPH Flag Drip Emitter, Green
4-GPH Flag Drip Emitter, Red

Step 4

Calculate Water Usage and Plan for Future Expansion

Efficient water delivery requires understanding your system's total flow rate. Add up the flow rates of all drippers and sprayers in each section or zone.

Example Calculation for a Drip Irrigation System:

- **2 micro sprayers** at 8 GPH (gallons per hour) each
- **40 drippers:** 20 drippers at 1 GPH and 20 drippers at 2 GPH

Flow Rate Calculation:

- 20 drippers at 1 GPH = **20 GPH**
- 20 drippers at 2 GPH = **40 GPH**
- 2 micro sprayers at 8 GPH = **16 GPH**

The **total flow rate** for this setup is **76 GPH**. To convert to gallons per minute (GPM), divide by 60, resulting in **1.27 GPM**.



Plan for Future Expansion and Growth:

As plants mature, their water needs may increase. To accommodate this:

- Extend watering times or add extra drippers to support expanding root zones.
- When designing the system, plan for an additional **20-30% water capacity** to support future plantings.

Tips for Future-Proofing Your System:

- Use **3/4-inch faucets and anti-siphon valves** to ensure sufficient and reliable water flow for residential gardens, providing the capacity needed to support efficient irrigation systems.
- **1/2-inch poly tubing:** Supports up to 220 GPH (3.6 GPM). If more flow is required, add another line of 1/2-inch tubing.
- **3/4-inch valves:** Handle up to 540 GPH (9 GPM) per zone, making them ideal for higher-capacity setups.



Step 5

Determine Watering Frequency

Watering frequency depends on climate, plant type, and soil conditions. Use these general guidelines for drip irrigation:



Plant Type	Hot Weather	Warm Weather	Cool Weather
Flowers, Vegetables	1-2 days	2-3 days	3-4 days
Small Trees/Shrubs	1-2 days	2-3 days	3-4 days
Medium Trees/Shrubs	2-3 days	3-4 days	4-5 days
Large Trees/Shrubs	2-3 days	4-5 days	5-6 days

By following these five steps, you can install an efficient, water-saving drip irrigation system that promotes healthier plants and conserves water in your landscape! —