4.0 Working With the Irrigation System

The greywater system is designed to integrate seamlessly with existing irrigation system technology. Unlike other greywater systems on the market, the Smart System does not require proprietary controllers, valves or drip equipment to be used for the irrigation system.

The System supplies a constant pressure of 45-65 psi at a maximum flow of 15 GPM to the drip irrigation system. If a single zone exceeds 15 GPM, divide the zone into 2 zones.

4.1 Irrigation Controller Compatibility

The Smart Greywater System is compatible with all brands of irrigation controllers include smart controllers.

4.2 Irrigating Non-Greywater Zones

Some zones of irrigation shall never be supplied by greywater due to code restrictions or health and safety concerns. All non-greywater zones shall be supplied by a secondary mainline which supplies only makeup water (figure 7). Makeup water can be potable domestic water, well water or another water source. Specific non-greywater zones include:

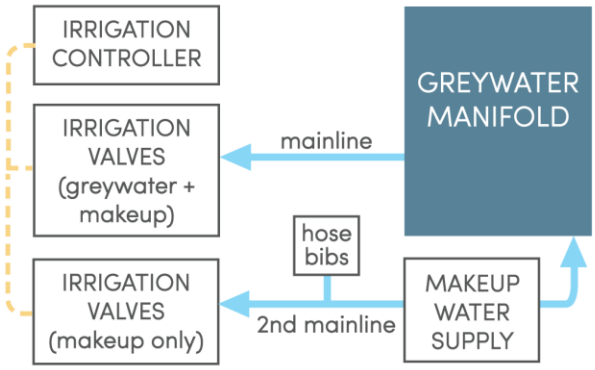

Figure 7

- Spray Irrigation: Greywater cannot be sprayed through the air. All greywater shall be applied through sub-surface drip irrigation (or other method) buried 2" deep under soil or mulch, per CA code requirements.
- Pots on Hardscape: Greywater cannot drain through pots and puddle on patios where it is accessible to humans or pets.
- Root Crop Vegetables: Greywater cannot come into direct physical contact with the edible portions of plants. Greywater can irrigate vegetables and fruit trees where the edible portions are above ground.
- Green roofs/shallow planters: Greywater cannot enter the stormwater drainage system. Any shallow planted areas which are collected into a subsurface drainage system cannot be irrigated with greywater.

4.3 Hose Bibs

Because greywater is non-potable, hose bibs should not be installed on the non-potable mainline where children may access the water.

⚠ NOTE Hose-bibs shall be installed on the secondary mainline only (figure 7) or installed directly off the makeup water supply

4.4 Plant Greywater Tolerance

Greywater tends to be alkaline (pH 7.5-8.5) due to cleaning products and detergents in the greywater. Most plants thrive in greywater, including drought tolerant/native West Coast plants which grow in alkaline soils. Acid loving plants (rhododendrons, azaleas, etc.) will need additional compost & acid fertilizers to maintain more acidic soil after many years of greywater irrigation

4.5 Other Irrigation Considerations

Irrigation Valves, Filters, Pressure Reducers & Piping

Standard irrigation valves may be used with the greywater system. 100-micron drip filters shall be installed on irrigation valves as is typical. Pressure reducers shall be installed on irrigation valves as is typical.

⚠ NOTE Install purple piping, valve boxes, and purple tags on irrigation valves to indicate a non-potable irrigation system

Dripperlines, bubblers, ect.

All greywater must be dispersed subsurface 2" below soil or mulch. We recommend using *Geoflow Wasteflow* dripperline or *Netafim Bioline* which is made specifically for greywater/blackwater dispersal. If these products are not available then standard recycled water dripperline from any of the large manufactures (Netafim, Hunter, Rainbird, ect.) are satisfactory. Bubblers may be used if they are located below ground in a small valve boxes.

⚠ NOTE Greywater shall be applied through subsurface methods only (drip, bubblers, ect) and shall never by sprayed through the air

5.0 Optimizing the Irrigation Program

The greywater tank can hold a maximum of 250 gallons of greywater before the tank overflows to the sewer and greywater wasted. To reduce waste of greywater, the irrigation system should use the greywater before the tank overflows.

5.1 Ideal Irrigation Program

The ideal irrigation program would spread the irrigation run times throughout the week and avoid watering all zones on a single day. The following is an example of an ideal schedule:

Ideal Irrigation Schedule			
Program	Zones	Day to Irrigate	Water needs
A	1-4	Monday	Low
B	5-9	Wednesday	Low
C	10-13	Thurs, Saturday	Medium
D	14-18	Tues, Friday, Sunday	High

In the above irrigation schedule, the irrigation system is running every day of the week and the greywater produced during the day will be used in the irrigation system the next day. This will minimize the chance of the tank filling up and overflowing.

5.2 Non-ideal Irrigation Program

A non-ideal irrigation program would have all the zones run on just a few days of the week:

Non-Ideal Irrigation Schedule			
Program	Zones	Day to Irrigate	Water needs
A	1-13	Monday	Low
B	15-18	Monday, Friday	Medium
C	none	-	-
D	none	-	-

In the above irrigation schedule, the greywater tank will be filling on Tuesday & Wednesday and may start overflowing on Thursday before the next irrigation cycle occurs on Friday, wasting greywater.

5.3 Smart Controllers: Tips & Tricks

Some smart controllers do not allow the user to set the watering days for the zones (the controller determines the intervals between watering). To avoid the controller lumping all zones on one day we recommend using the controllers Zone Delay or Watering Window feature.

Zone Delay

Many irrigation controllers have a Zone Delay function which allows the user to enter a time delay between the end of one irrigation zone watering and the start of the another. This will spread out the irrigation throughout the day and allow the greywater tank to fill between irrigation zone cycles. Many controllers allow a Zone Delay of 4 to 6 hours between zones

Controller Program Without Zone Delay		
Zones	Zone Run Time, minutes	Total time to irrigate all zones, days
1-18	30	0.4 days

If the Smart controller is programmed with a 4-hour delay, then the watering will be spread out, and allow the greywater tank to fill up between zones:

Controller Program With 4-hour Zone Delay		
Zones	Zone Run Time, minutes	Total time to irrigate all zones, days
1-18	30	3.2 days

Watering Window

Many irrigation controllers allow a Watering Window to be set which limits the total time of irrigation that can occur during the day. By setting a Water Window of just a few hours a day, the Smart Controller is forced to spread out the irrigation throughout the week.

⚠ NOTE **Do not set the Watering Window too small or the Controller will not be able to water all the zones adequately.**