



Constructed Wetland Graywater System Operation and Maintenance Manual

Congratulations on your new graywater system! This manual will help you maintain a well-functioning, water-saving graywater system.

California law requires that this manual is to remain with the building throughout the life of the system. Upon change of ownership or occupancy, the new owner or tenant must be notified that the structure contains a graywater system. A map showing the location of all graywater system components is attached to this owner's manual.

1. How do I turn my graywater system off?

If you ever need to switch your graywater system from irrigating your landscape to disposal into the sewer/septic, go to the three-way valve and turn the handle to direct the water towards the sewer or septic system. The first few times you do this check and make sure the system is turning off when you want and that your 3-way valve is labeled correctly.

These are common times you'll need to turn off your system:

- During the rainy season when/if irrigation is not needed
- During the rainy season if the ground water table has risen above 3 feet
- When washing dirty diapers
- When washing anything with chemicals, like oily rags
- Anytime you may use products that are harmful to plants (like bleach or harsh cleaners)
- Anytime you notice that the water isn't draining well and you see pooling or runoff in the landscape
- If you think your plants are receiving too much water
- A few days before servicing, weeding or making repairs to the submerged area of the constructed wetland system

2. What products can I use in my graywater system?

Plant friendly products are key when reusing your graywater. All products should be biodegradable and non-toxic. In addition, they should be free of salt (sodium) and boron (borax), two common ingredients that are non-toxic to people but are harmful to plants and/or the soil. Chlorine bleach is also harmful to plants and should be diverted with any other harmful products to the sewer or septic by switching the 3-way valve. Hydrogen peroxide bleaches are non-harmful and can be used instead of chlorine. Another consideration with cleaning and beauty products is their affect on the pH of the water. While many soaps do not change the pH, some do. In general, liquid soaps do not change the pH, while bar soaps make the water very basic (opposite of acidic). Certain acid loving plants may not be happy with this kind of water. If you're uncertain if the pH is



Constructed Wetland Graywater System Operation and Maintenance Manual

being affected choose plants that are not acid loving to irrigate. Acid loving plants include ferns, rhododendrons, and blueberries.

Products we recommend: (they are salt and boron free, and pH neutral)

Laundry: Oasis, Ecos, Biopac liquid detergent. There are also soap alternatives that are graywater friendly, like soap nuts, and "wonder balls".

Showers: Aubrey Organics makes shampoos and conditioners that don't have salt or unhealthy chemicals, and are fairly easy to find. In a shower, shampoo is fairly diluted so it is not as important as detergents in the washing machine; but, it is important to have products that are not harmful to our health. Surprisingly many shampoos and conditioners contain carcinogenic chemicals, reproductive toxins and neurotoxins. You can find out what's in your products at the [Campaign for Safe Cosmetic's on-line database \(www.cosmeticdatabase.org\)](http://www.cosmeticdatabase.org)

Sinks: Oasis All-purpose cleaner, Dr. Bronners

3. How do I maintain my Constructed Wetland System?

- You will need to weed your wetland on a yearly basis. Grass and other weeds can take over and potentially create clogging problems in the wetland. Dead plants will need to be removed. Always wear gloves when working in the wetland.
- You should periodically check to make sure water is flowing properly through the wetland and not pooling up on the surface or spilling over the edge. If the wetland has become clogged you should dig around the inlet and outlet and remove plants from those areas. In the worst-case scenario and the plant roots are clogging the entire wetland, you will need to remove the plants from the roots. Gloves should always be worn when working in the wetland and handling graywater.

When the constructed wetland overflow is connected to irrigation/mulch basin graywater outlets:

- If you notice any pooling or runoff you should dig out the mulch area and replace it with new mulch (wood chips or bark). This typically needs to be done once every year or two.
- At the beginning of the irrigation season and periodically thereafter, check to ensure that graywater is coming out evenly among the outlets. If you notice uneven distribution of graywater you should check the outlets for clogs and manually remove the debris causing the obstruction or "flush" the system with a hose. There may be some settling of the system over time, which could cause uneven distribution out of the outlets. You can readjust the slope of the double ell (twin 90) flow splitters to even out the flow.



Constructed Wetland Graywater System Operation and Maintenance Manual

To “flush” the branched drain system and remove multiple clogs:

If there is a blockage, you can insert a "snake" that will push out a clog. You can also insert a garden hose into a clean-out and blast water through the system. ***Any time you attach a garden hose to temporarily flush the system, make sure you have an anti-siphon valve or vacuum breaker on your garden hose-bib!***

4. What are the minimum requirements that I need to follow for my graywater system to comply with the law?

Under the California graywater code, CPC Title 24, Part 5, Chapter 16A, these requirements must be followed.

- The graywater system shall not be connected to any potable water system without an air gap or other physical device which prevents backflow and shall not cause the ponding or runoff of graywater.
- Graywater shall not be used in spray irrigation, allowed to pond or runoff and shall not be discharged directly into or reach any storm sewer system or any surface body of water.
- No graywater system or part thereof shall be located on any lot other than the lot that is the site of the building or structure that discharges the graywater, nor shall any graywater system or part thereof be located at any point having less than the minimum distances indicated in CPC Chapter 16A Table 16A-1:

Building structures: 2 feet

Property line adjoining private property:

1.5 feet

Water supply wells: 100 feet

*Streams and lakes: 100 feet**

Sewage pits or cesspools: 5 feet

Sewage disposal field: 4 feet

Septic tank: 5 feet

Onsite domestic water service line: 0 feet

Pressurized public water main: 10 feet

**Enforcing agency may consider a constructed wetland to be “treated” graywater, of which the minimum distance of a graywater system to streams, lakes, and other water bodies may be 50 feet.*

- Water used to wash diapers or similarly soiled or infectious garments or other prohibited contents shall be diverted by the user to the building sewer.
- Human contact with graywater or the soil irrigated by graywater shall be minimized and avoided, except as required to maintain the graywater system.
- The discharge point of any graywater irrigation or disposal field shall be covered by at least (2) inches of mulch, rock, or soil, or a solid shield to minimize the possibility of human contact.
- Graywater shall not be used to irrigate root crops or edible parts of food crops that touch the soil.



***Constructed Wetland
Graywater System
Operation and Maintenance Manual***

5. Other Considerations:

For maintenance and operations questions regarding this graywater system, please contact:

Name of Installer & Company: _____

Address/City/State/Zip: _____

Contact Telephone Number: _____

Date of Installation: _____