



LAUNDRY TO LANDSCAPE (L2L) GREYWATER

- L2L-1 System Checklist
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- L2L-3 Plant Palette for Ventura County



Laundry to Landscape (L2L) Greywater System Checklist



The following are typical best practices for on-site greywater reuse. Adapt the designs shown to your specific site.

1. Evaluate L2L Feasibility

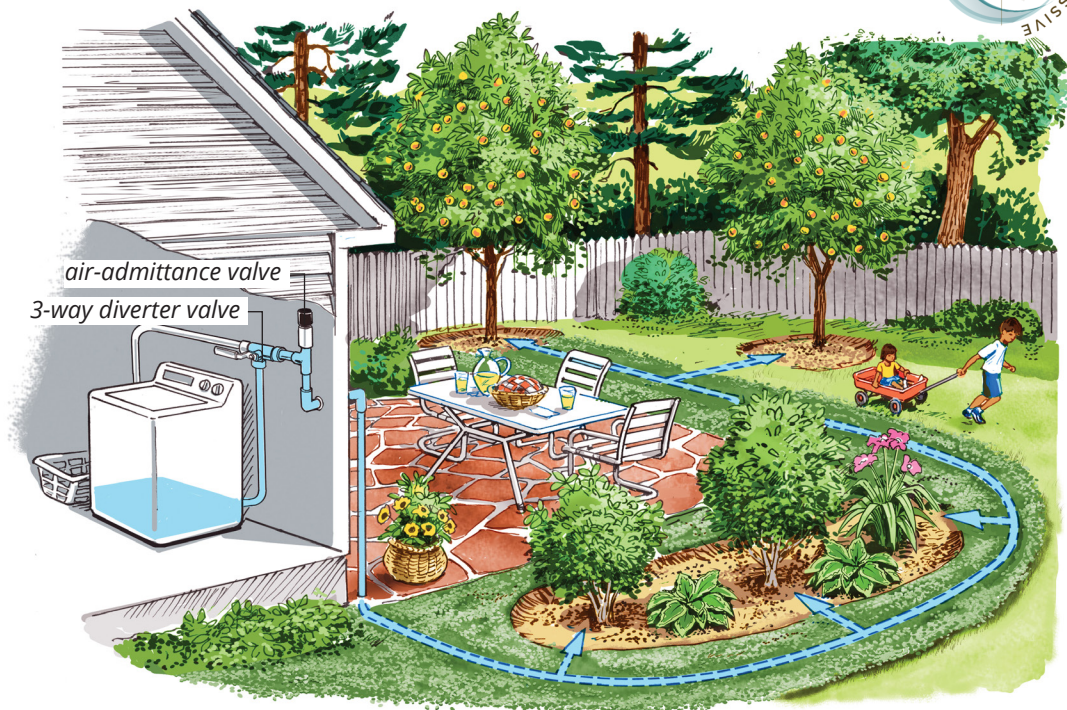
- ✓ Is your washing machine:
 - a. Near an outside wall?
 - OR
 - b. Over a crawlspace?
- ✓ Is there a landscape area for greywater to irrigate that is:
 - c. Within 50' of your washing machine?
 - AND
 - d. At or below the elevation of your washing machine?
 - AND
 - e. Outside of setbacks? Check local codes for healthy safety and setback info. Typical setbacks: Structures and Property lines - 2', Wells / Waterways - 100', Septic Tanks - 5'.

2. Landscape Planning

- ✓ Identify existing or new plants to irrigate with greywater. Best plant types include:
 - a. Medium water use trees, shrubs, perennials, vines, etc.
 - b. If growing food, edible portions not in direct contact with soil (no leafy green or root vegetables).
- ✓ Match the amount of greywater that you use (supply) with the water needs of your plants (demand). Supply varies by occupancy but generally:
 - a. Front-loading washing machines irrigate 4-8 plants;
 - b. Top loaders irrigate up to 15 plants.
- ✓ Perform a percolation test: <https://greywateraction.org/how-do-percolation-test/>

3. L2L Build It!

- ✓ Locate existing utilities and obstacles before digging: Dial 811 for Dig Alert.
- ✓ Install Ansi-Approved 3-way diverter valve: This will switch greywater back to sewer/septic as needed. Locate in accessible place and clearly label orientation.
- ✓ Install Air-Admittance valve above fill-line of washer: This valve prevents siphoning of the water.
- ✓ Drill pipe passage through wall or crawlspace to landscape: Try to avoid drilling through concrete or foundations unless it is the only route available.
- ✓ Dig trenches to identified planting areas: Dig arc-shaped mulch basins around planting areas (see greywater system details sheet for sizing info) without disturbing major existing root systems.
- ✓ Use 1" diameter HDPE or Blu-lock irrigation tubing as main-line conveyance piping: All piping should slope at 2%.
- ✓ Greywater must be distributed 2" below the surface: Dispense water into mulch basins to avoid human contact with non-potable greywater.
- ✓ Install a mulch shield or valve box: Locate at end of open pipe within mulch basins to reduce erosion and direct greywater to plant roots.

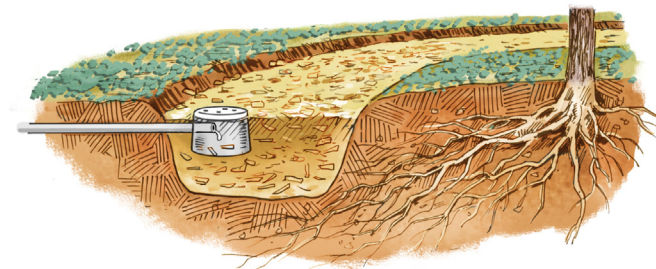


4. Operations and Maintenance

- ✓ Label greywater conveyance lines: " Non-potable greywater: Do not Drink"
- ✓ Use greywater safe laundry supplies: See <https://greywateraction.org/greywater-plant-friendly-products>
- ✓ Maintain the greywater system: Periodically inspect emitters, flush piping system, and re-dress mulch basins.

Typical Laundry to Landscape System

© Steve Sanford, from *Greywater, Green Landscape: How to Install Simple Water-Saving Irrigation Systems in Your Yard*.



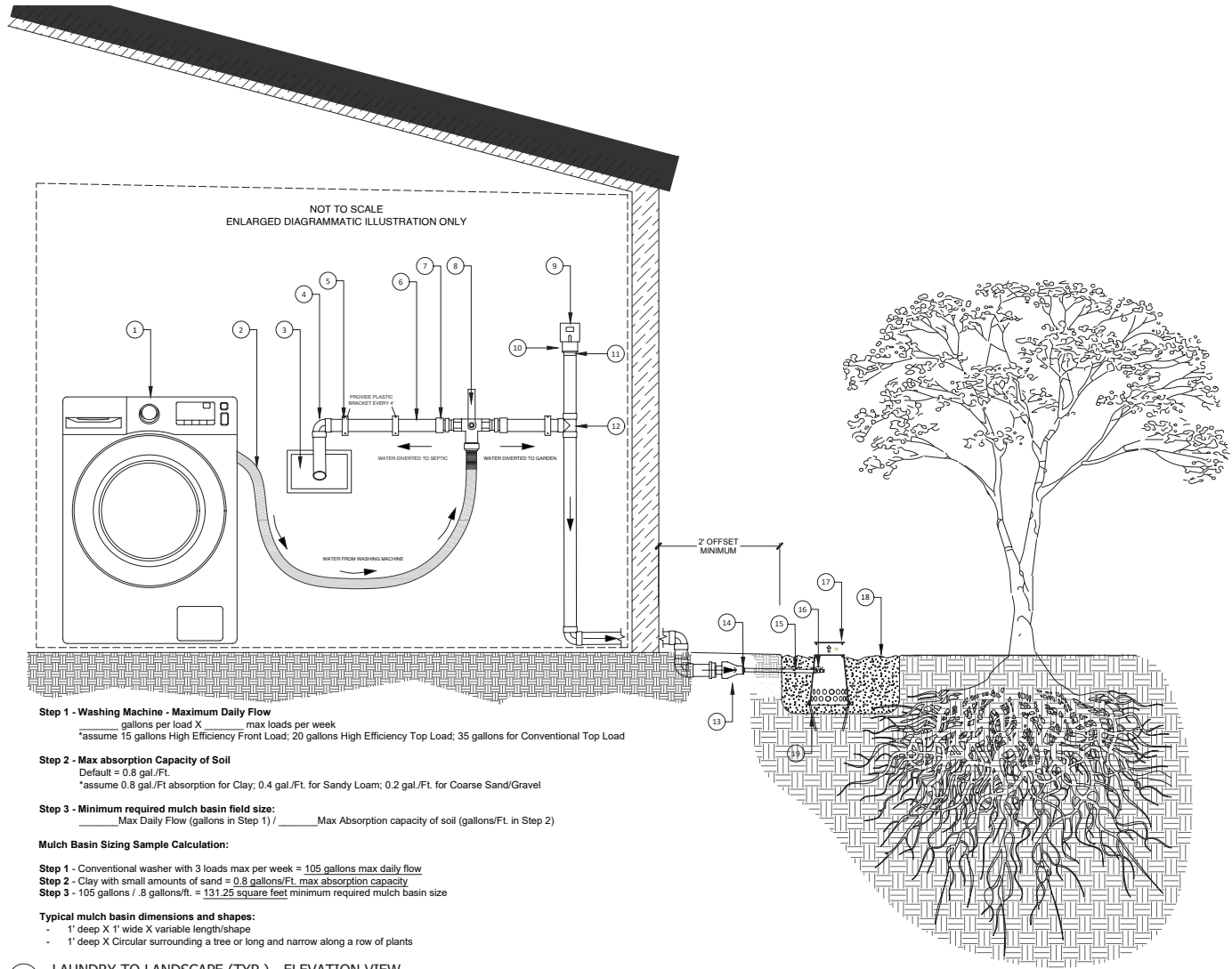
Mulch Basin with Mulch Shield/Valve Box

© Steve Sanford, from *Greywater, Green Landscape: How to Install Simple Water-Saving Irrigation Systems in Your Yard*.

5. Ventura County Considerations

- a. Greywater is a consistent irrigation source during dry periods and can be shut off during storms.
- b. Greywater-irrigated planting buffers can offer fire protection at wildland-urban interfaces.
- c. Mulching builds soil for better plant health and reduce irrigation demand.
- d. Relevant Ventura County greywater codes may be found at: <https://www.cityofventura.ca.gov/DocumentCenter/View/947/Greywater-PDF>

Laundry to Landscape (L2L) Greywater System Details



- Step 1 - Washing Machine - Maximum Daily Flow**
gallons per load X _____ max loads per week
*assume 15 gallons High Efficiency Front Load; 20 gallons High Efficiency Top Load; 35 gallons for Conventional Top Load
- Step 2 - Max absorption Capacity of Soil**
Default = 0.8 gal./ft.
*assume 0.8 gal./ft. absorption for Clay; 0.4 gal./ft. for Sandy Loam; 0.2 gal./ft. for Coarse Sand/Gravel
- Step 3 - Minimum required mulch basin field size:**
_____ Max Daily Flow (gallons in Step 1) / _____ Max Absorption capacity of soil (gallons/ft. in Step 2)

Mulch Basin Sizing Sample Calculation:

Step 1 - Conventional washer with 3 loads max per week = 105 gallons max daily flow
Step 2 - Clay with small amounts of sand = 0.8 gallons/ft. max absorption capacity
Step 3 - 105 gallons / .8 gallons/ft. = 131.25 square feet minimum required mulch basin size

Typical mulch basin dimensions and shapes:

- 1' deep X 1' wide X variable length/shape
- 1' deep X Circular surrounding a tree or long and narrow along a row of plants

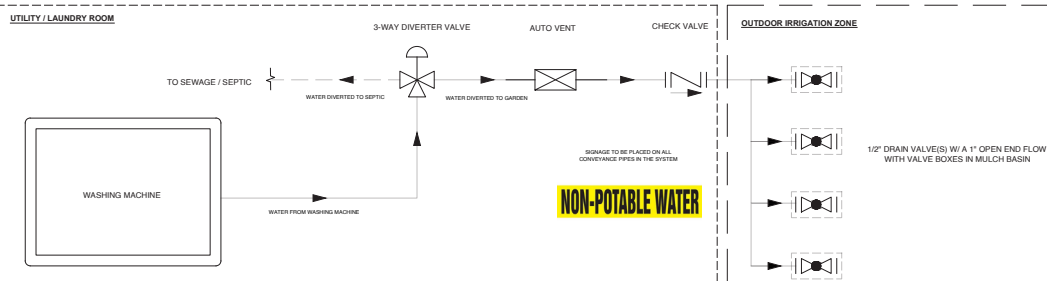
General Notes:

- A. The drawings are diagrammatic in nature and are created to represent the concepts as associated with on-site water reuse and storm water management / basin installations. For all site dimensions and exact relative locations, field condition as-builts should be requested from the property owner.
- B. Typical front loading washing machine is able to distribute water up to eight locations. A typical top loading washing machine is able to distribute water up to twelve locations (depending on the site conditions).
- C. All irrigation points to be 2 inches below the surface in mulch basins.
- D. The end of main line should be fully open with no plug / or valve.
- E. Verify minimum horizontal offsets for graywater (per CPC 2016) + local county codes for the following:
 - Building Structures
 - Property Line
 - Water Supply Wells
 - Septic Tank
- F. Laundry to Landscape (L2L) system must be equipped with accessible three way diverter valve with sign that indicates operation, so washing machine discharge water can be diverted to septic/sewer during rain events or if soil reaches a high level of saturation.
- G. Products with bleach, salt, alcohol or other industrial chemicals are not recommended for use in these graywater systems.
- H. 1" SCH 40 PVC will slope downward at 2 degrees or 1/4" per foot.
- I. All graywater conveyance lines shall be marked "Non Potable, Do not Drink".
- J. Laundry to Landscape (L2L) graywater systems are exempt from permitting per CPC 2016.
 - Water is coming directly from washing machine.
 - No existing house plumbing has been altered
- K. All devices will be ASNI/NSF approved. All devices to be accompanied with reference and maintenance instructions per maintenance and monitoring plan.
- L. Client will be provided with a maintenance manual for the system.
- M. Auto Vent must be higher than fill line of washing machine.
- N. All existing tanks, piping, and electrical work will be avoided and protected when necessary throughout construction.
- O. 811 - know what's below - call before you dig

Sheet Notes:

1. Front loading washing machine (TYP.)
2. Washing machine drain hose
3. Standpipe to sewage provision
4. 1" PVC 90° elbow
5. Mounting brackets (4' Spacing)
6. 1" PVC Pipe
7. 1" PVC Male Barbed X Female Slip Adapter
8. 3-Way diverter valve
9. Auto Vent (minimum size 1.5") - To prevent potential siphon in the system
*Optional - Install outside if laundry room is not well ventilated or too warm.
10. 1.5" Threaded Adapter
11. 1.5 to 1" Bushing
12. 1" PVC Tee
13. 1" PVC Check Valve - To prevent the back-flow of laundry water
14. 1" to 1/2" barbed fitting to 1/2" poly line
15. 1/2" poly line
16. 1/2" Drain valve
17. 6" Round irrigation valve box w/ lid for each mulch basin
18. Mulch Basin - Irrigating trees, shrubs or ground cover
19. Landscape pins to secure irrigation box into place

1 LAUNDRY TO LANDSCAPE (TYP.) - ELEVATION VIEW



2 LAUNDRY TO LANDSCAPE (TYP.) - PLAN VIEW

Laundry to Landscape (L2L) Greywater Plant Palette for Ventura County



Sample Medium Water Use Native and/or Edible Plant Species (🌻 = Native, 🍷 = Edible)

Trees



Acer macrophyllum
Big leaf Maple



Citrus sp.
Citrus Tree



Ficus carica
Common Fig



Juglans californicum
California Black Walnut



Morus alba x rubra
Pakistan Mulberry



Platanus racemosa
Sycamore



Populus fremontii
Fremont Cottonwood

Shrubs



Acca sellowiana
Pineapple Guava



Diospyros kaki
Persimmon



Punica granatum
Pomegranate



Ribes aureum
Golden Currant



Rosa californica
California Wild Rose



Rubus ursinus
California Blackberry



Vaccinium spp.
Blueberries

Perennials



Achillea millefolium
Yarrow



Anemopsis californica
Yerba Mansa



Cynara scolymus
Artichoke



Dicentra formosa
Pacific Bleeding Heart



Heuchera spp.
Coral Bells



Iris douglasiana
Douglas Iris



Mimulus cardinalis
Scarlet Monkeyflower

Grasses, Sedges, Rushes



Calamagrostis foliosa
Mendocino Reed Grass



Carex barbata
Basket Sedge



Carex praegracilis
California Field Sedge



Festuca glauca
Blue Fescue



Juncus patens
California Gray Rush



Juncus textilis
Basket Rush



Sisyrinchium bellum
Blue Eyed Grass

Vines



Actinidia arguta
Hardy Kiwi



Humulus lupulus
Hops Vine



Lathyrus odoratus
Sweet Pea Vine



Passiflora edulis
Passionfruit Vine



Physalis ixocarpa
Tomatillo Vine



Selenicereus undatus
Dragon Fruit Vine



Vitis 'Roger's Red'
Roger's Red Grape