



Auxiliary Water Overview

Commercial Water Conservation Workshop

September 24, 2014

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Austin Water

Auxiliary water is.....

- A water supply from a source other than the City's potable water supply.
- Sources include:
 - Rainwater
 - Graywater
 - A/C Condensate
 - Reclaimed or Recycled water
 - Raw water
 - others

Rainwater harvesting is...

- Capturing, diverting, and storing rainwater for later use
 - Landscape irrigation
 - Equipment washing
 - Outdoor fountains and ponds
- Benefits
 - Conserve water
 - Prepare for droughts
 - Improve plant health
 - Reduce stormwater runoff
- System types:
 - Simple, gravity-fed rainbarrel
 - Large-scale, pressurized systems



System Components

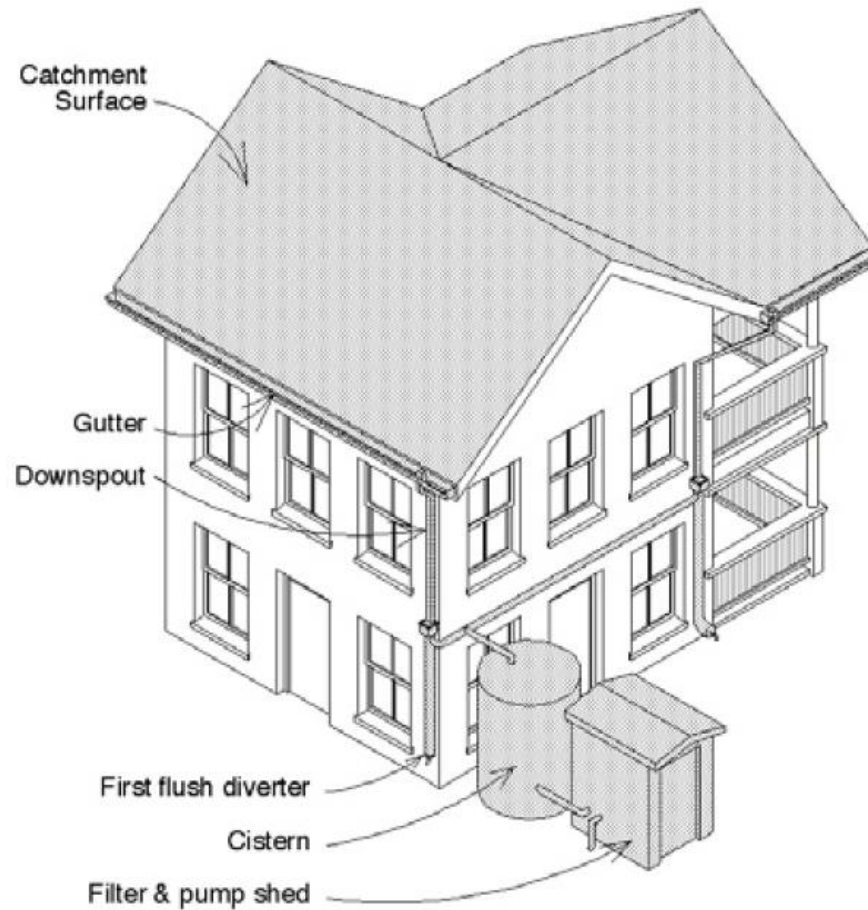


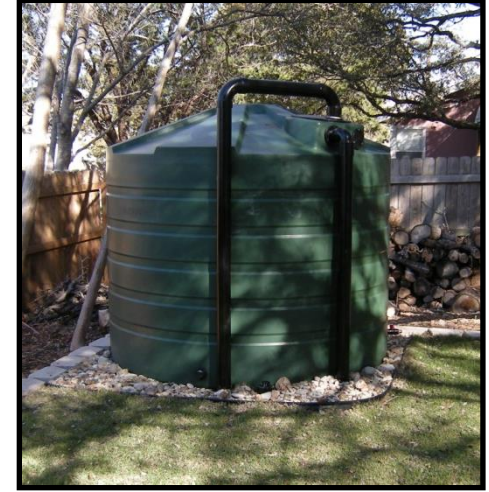
Image source: The Texas Manual on Rainwater Harvesting

Storage Tank

- Rainwater supply
- Landscaping demand
- Length of dry spells
- Catchment area
- Aesthetics
- Site characteristics
- Personal preference
- Budget



Tank & System Types



System Safety & Maintenance

- Safety & Water Quality
 - Water quality is responsibility of owner
 - Label tank & pipes as non-potable
 - Secure the tank to restrict access
- System Maintenance
 - Trim back trees & plants
 - Clean & repair system components
 - Purge first-flush regularly



<http://www.frontdoor.com/Buy/Top-10-Red-Flags-for-Homebuyers/1355>

City of Austin Incentive

- Pre-approval required for tanks 500 and larger
- Participation limited to once per year
- Customer of Austin Water or eligible district
- Rebate amount:
 - Non-pressurized: \$0.50/gal
 - Pressurized: \$1.00/gal
 - Up to \$5,000 not to exceed 50% project cost

Austin WATER
Clearly Reliable

Request ID Number _____ (City Use Only)

Rainwater Harvesting Rebate Program Application

Please read the program guidelines on page 1 prior to completing this form.

Are you applying for:
 Less than one gallon (no rebate) or one to complete prior to application submitted
 1,000 gallons or more (application must be submitted for entire year in post-fire or individual)

Property type:
 Single-Family Multi-Family Commercial, Institutional, or Industrial
*Commercial applications must include a completed W-9 form with application.

Applicant (owner, lessee, or account holder) _____
 Austin Water Account No. or water district name _____
 Primary Phone _____ Secondary Phone _____
 E-mail Address _____
 Installation Address _____ Zip Code _____
 Mailing Address _____ Zip Code _____

Total new storage capacity _____ (Is a pump included?) Yes No

For systems of one-gallon or more, a site drawing, system drawing, and operation and maintenance guide must be included with the application. Please check off the items below to indicate that each is included.

Site drawing: sketch the layout of building, streets adjacent to the site, existing or proposed tank location, Austin Water meter location, and piping from the tank to the landscaped area. Identify the dimensions of the catchment area and the landscaped area to be irrigated with the harvested rainwater.

System drawing: sketch the system, including piping and first flush details, pump location of applicator, tank material, placement, and dimensions, and pad material and construction.

Operation & maintenance guide: written description of how the system will function and how maintenance will be performed.

Customer Agreement
 I certify that the information I have supplied in the application is accurate and that I have read and understand the program guidelines. I understand Austin Water does not assume liability for rebate products or services and that rebate application consideration or rebate receipt does not take the place of any required permit or inspections. I agree to make a good faith effort to keep my rainwater harvesting system functional for at least five years and larger rainwater collection systems for at least 10 years, initial and maintain required backflow prevention. If the entire system does not use collected rainwater for potable use, I authorize Austin Water to release my project to research, maintain, and to be contacted regarding participation in public hearings or promotional tours of rainwater harvesting systems. I understand that Austin Water reserves the right to cancel or modify the program without notice and that rebate amount is subject to funding availability.

Signature _____ Date _____
 Print Name _____

Mail applications and other documents to:
 Austin Water Connection
 P.O. Box 1088
 Austin, TX 78747
 Or fax to: 512-324

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Rainwater Regulations

- TCEQ Regulations (TAC Chapter 290, Subchapter D)
 - Potable use allowed
 - Must have appropriate backflow protections on place
 - Public water back-up supply may only be connected to the storage tank and not to the public water system
- City of Austin Regulations (2012 UPC Chapter 17, Appendix K & City Code §25-12-153)
 - Potable use allowed
 - Treatment required when used indoors
 - Backflow protection required for pressurized systems and systems with indoor uses

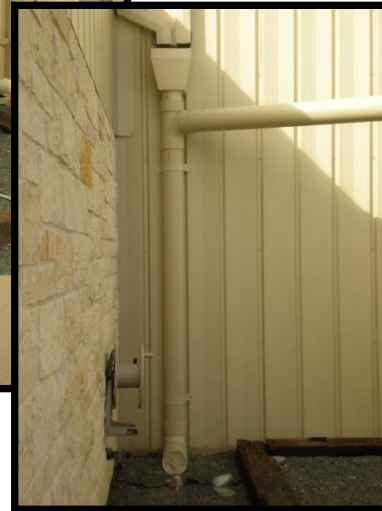
City Facilities



Austin Child Guidance Center



Austin Gutter King

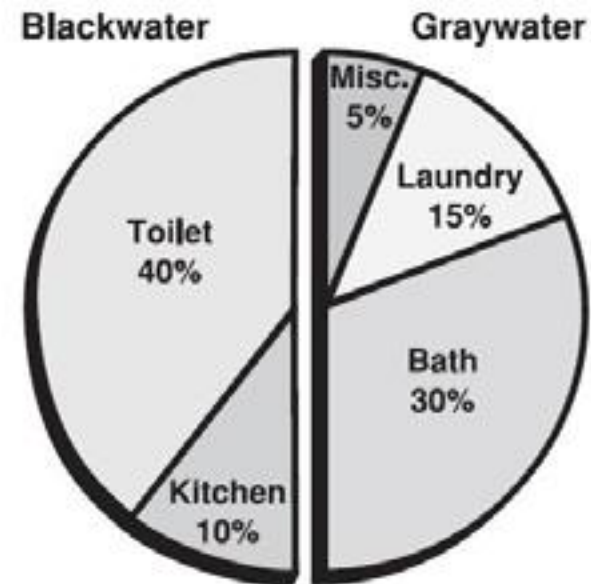


Bowie High School



What is Graywater?

- Untreated wastewater from bathtubs, showers, lavatories and laundry
- Benefits:
 - Potential savings of 40-90 gpd
 - Sustainable onsite water reuse
 - Reduces pressure on wastewater infrastructure
 - Reliable source for irrigation during drought



Permit requirements

- Required for all graywater systems
- Homestead permit available for Lawn to Laundry Systems
- New Auxiliary Water Permit sub-work type available



Auxiliary Water System Permit Application
Special Services Division 3907 South Industrial Drive, Suite 100, Austin, TX 78744
 (512) 972-1060 www.austintexas.gov/department/special-services-division
AWUCrossConnection@austintexas.gov

Property Address: _____		Zip Code: _____
Contact Name: _____		Phone Number: (____) _____
Mailing Address: _____		
City: _____	State: _____	Zip Code: _____
Email: _____		

Type of Auxiliary Water on site (check all that apply):		
<input type="checkbox"/> Condensate	<input type="checkbox"/> Gray Water	<input type="checkbox"/> Ground Water
<input type="checkbox"/> Lake/River	<input type="checkbox"/> Reclaimed	<input type="checkbox"/> Rainwater
<input type="checkbox"/> Re-Irrigation	<input type="checkbox"/> Spray Aerobic (OSSF)	<input type="checkbox"/> Well
<input type="checkbox"/> Other (please describe): _____		

Distribution Method (check one):		<input type="checkbox"/> Gravity	<input type="checkbox"/> Pumped
Does the Auxiliary Water enter the building?		<input type="checkbox"/> Yes	<input type="checkbox"/> No
Is potable water used for makeup?		<input type="checkbox"/> Yes	<input type="checkbox"/> No

Usage (check all that apply):			
<input type="checkbox"/> Car Wash	<input type="checkbox"/> Cooling Tower	<input type="checkbox"/> Irrigation	<input type="checkbox"/> Toilet/Urinal Flushing
<input type="checkbox"/> Trap Primer	<input type="checkbox"/> Process Water	<input type="checkbox"/> Water Feature	
<input type="checkbox"/> Other (please describe): _____			

Print Name: _____ Date: _____

Signature: _____

FOR OFFICE USE ONLY			
Received by: _____	Date: _____		
Entered by: _____	Date: _____		
Status: <input type="checkbox"/> Approved	<input type="checkbox"/> Rejected	<input type="checkbox"/> Withdrawn	
Notes: _____			

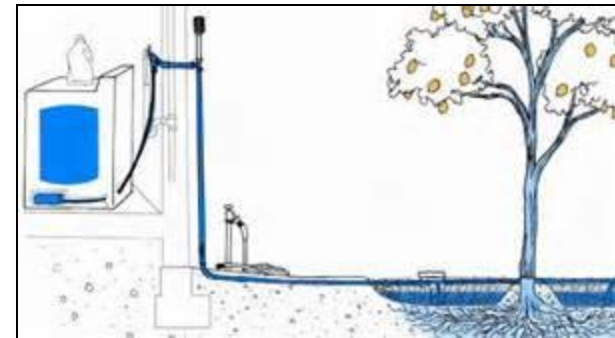
System types

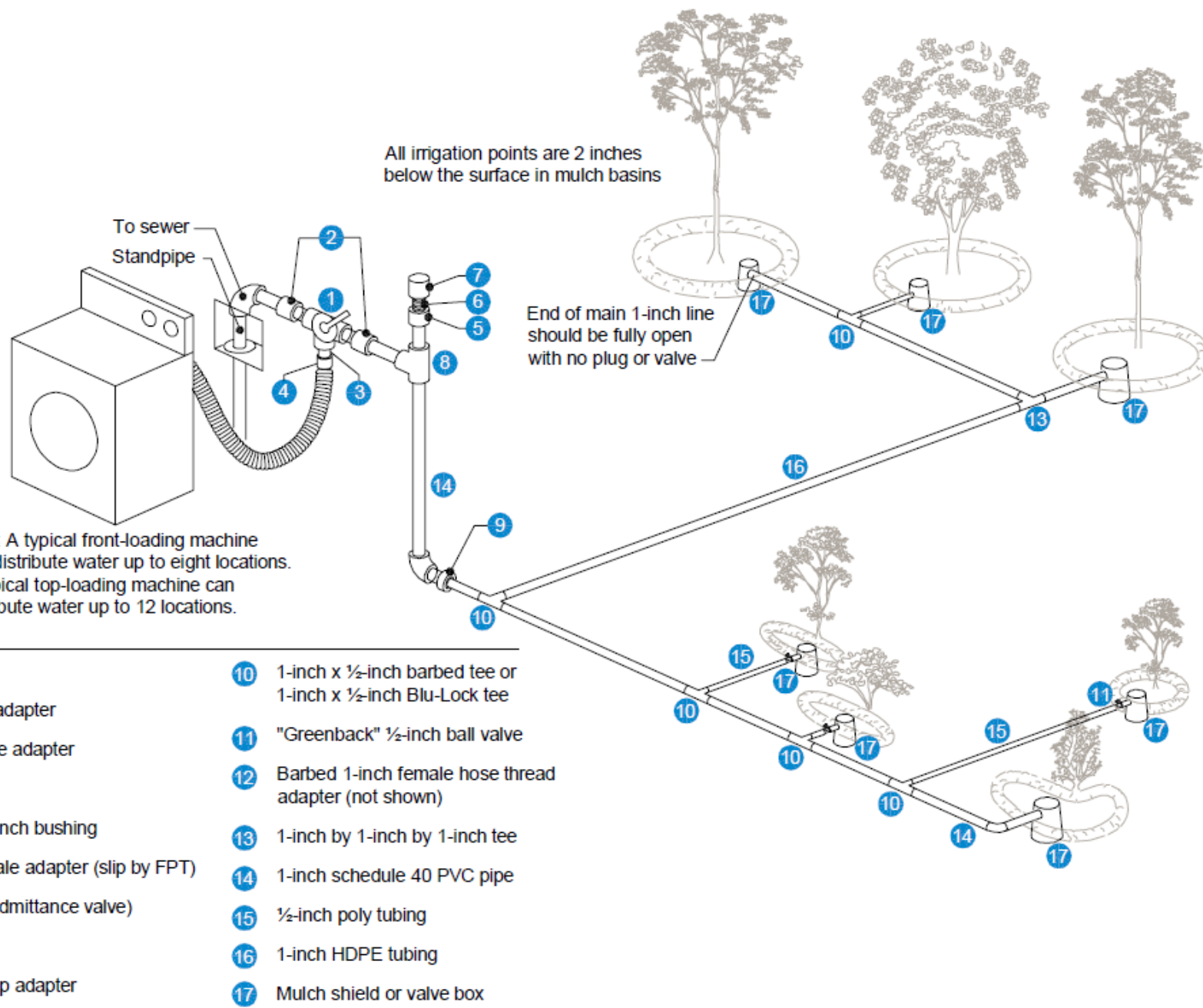
- Laundry to Landscape
- Branched drain
- Gravity fed
- Pressurized



Laundry to Landscape

- Simple design
- Single Source (Washing Machine)
- Low cost
- Tankless
- Homestead permit available
- Only available for private one and two family dwellings





All irrigation points are 2 inches below the surface in mulch basins

End of main 1-inch line should be fully open with no plug or valve

Note: A typical front-loading machine can distribute water up to eight locations. A typical top-loading machine can distribute water up to 12 locations.

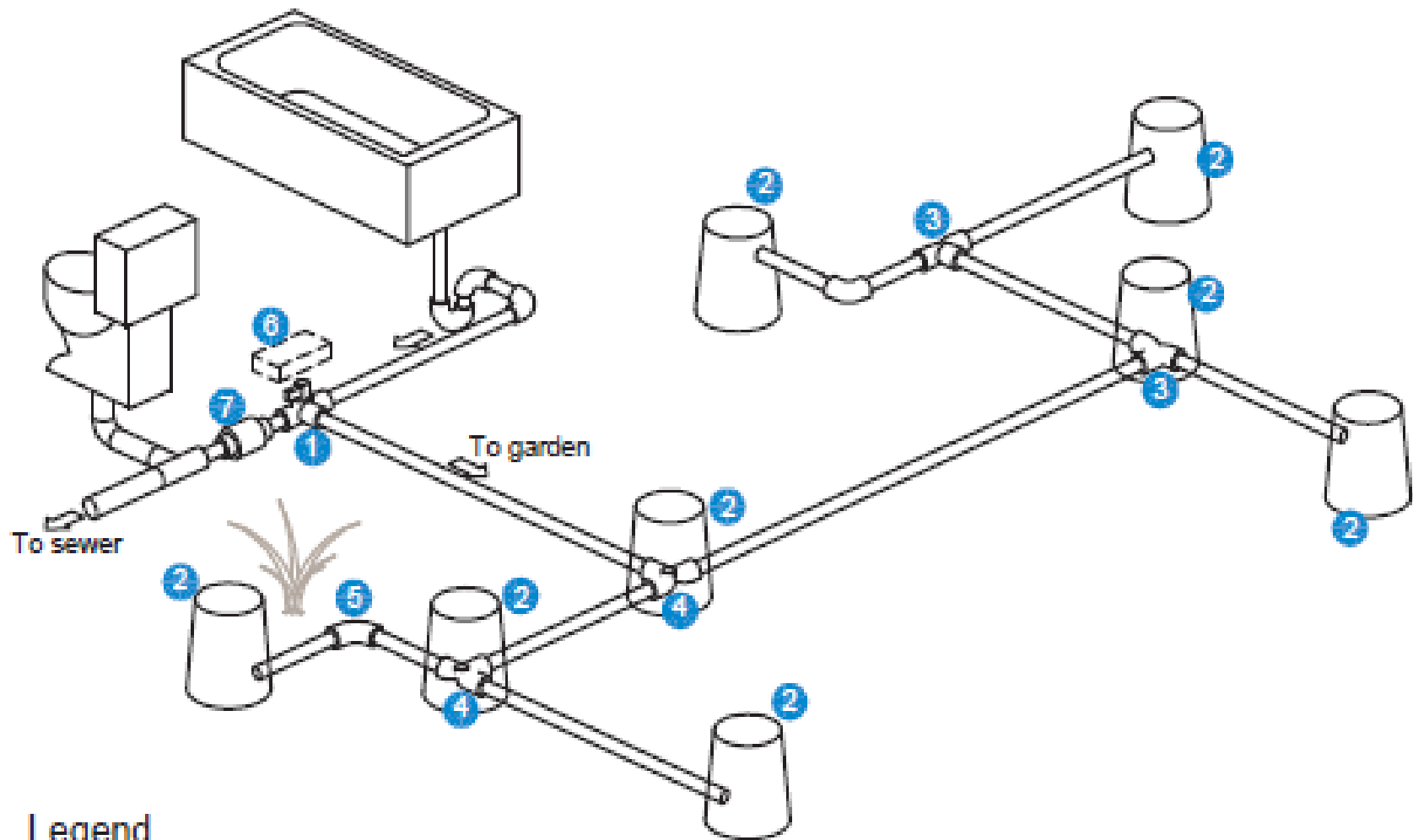
Legend

- | | |
|-----------------------------------------------|-------------------------------------------------------------------|
| 1 3-way valve | 10 1-inch x 1/2-inch barbed tee or 1-inch x 1/2-inch Blu-Lock tee |
| 2 PVC 1-inch male adapter | 11 "Greenback" 1/2-inch ball valve |
| 3 1-inch barbed male adapter | 12 Barbed 1-inch female hose thread adapter (not shown) |
| 4 Hose clamp | 13 1-inch by 1-inch by 1-inch tee |
| 5 PVC 1-inch x 1 1/2-inch bushing | 14 1-inch schedule 40 PVC pipe |
| 6 PVC 1 1/2-inch female adapter (slip by FPT) | 15 1/2-inch poly tubing |
| 7 Auto vent (or air admittance valve) | 16 1-inch HDPE tubing |
| 8 1-inch PVC tee | 17 Mulch shield or valve box |
| 9 1-inch barbed x slip adapter | |

Branched

- Complex design
- Multiple sources
- Higher cost
- Requires a tank
- Requires professional design and installation
- Available for all dwellings and sectors
- Larger yield





Legend

- | | | | |
|---|------------------------------------------------------------------------|---|--------------------------------|
| 1 | 3-way diverter valve | 5 | 1.5" or 2" long sweep 90° bend |
| 2 | Small valve box or rigid plastic pot | 6 | Optional 3-way valve actuator |
| 3 | ABS 1.5" or 2" double ell (aka twin 90) | 7 | Backwater valve |
| 4 | ABS 1.5" or 2" double ell (aka twin 90) with inspection/clean-out port | | |

Distribution methods

- End-use is an important consideration
- Graywater should not be allowed to pool or pond
- Three distribution methods available
 - Subsoil
 - Subsurface
 - Mulch Basin



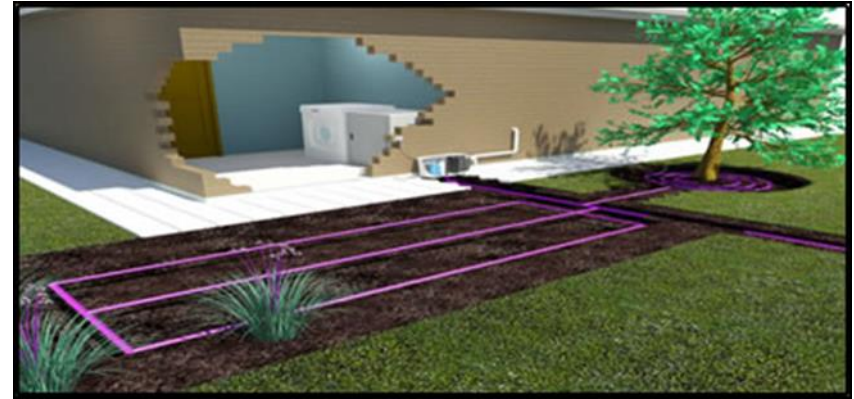
Subsoil

- Distribution piping not less than 3" in diameter
- Good choice for established shrubs
- 10" minimum distribution depth
- Single zone allowed
- Irrigation field requires sizing per soil type and distribution
- Available for all dwellings and sectors



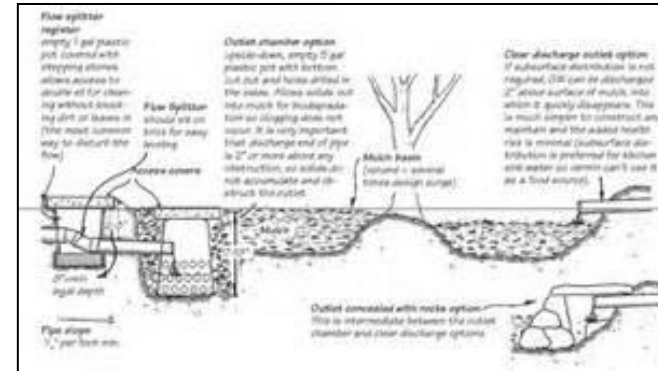
Subsurface

- 2" minimum distribution and supply line depth
- Best for planting beds or turf irrigation
- Single zone allowed
- Irrigation field requires sizing per soil type and distribution
- Available for all dwellings and sectors



Mulch Basin

- Only available for single family and multi-family dwellings
- Depth of basin not less than 10"
- Supply piping no less than 2" in diameter
- Good choice for larger established trees and shrubs
- Basin sizing dependent on soil type and distribution volume



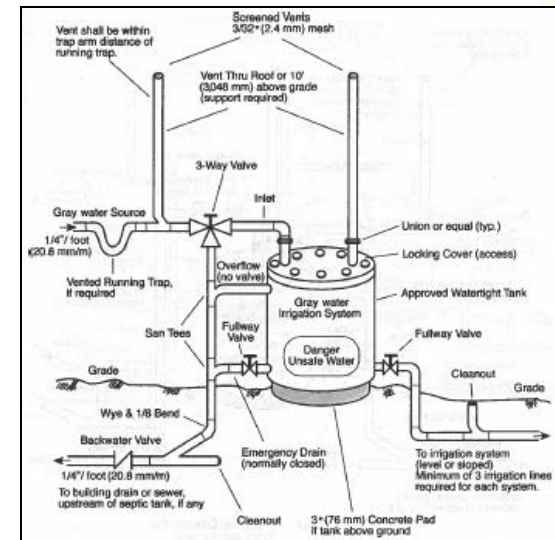
Commercial Graywater Uses

- Commercial process use
- Cooling tower make up supply
- Toilet flushing
- Trap Primers
- Alternate uses can be approved by Plumbing Officials
- Treatment required for most non-irrigation uses



Surge Tanks

- Required for most systems
- Must have overflow connected to Sanitary Sewer System
- Constructed of a durable material
- Should not be stored for more than 24 hours
- Sized to accommodate peak flow



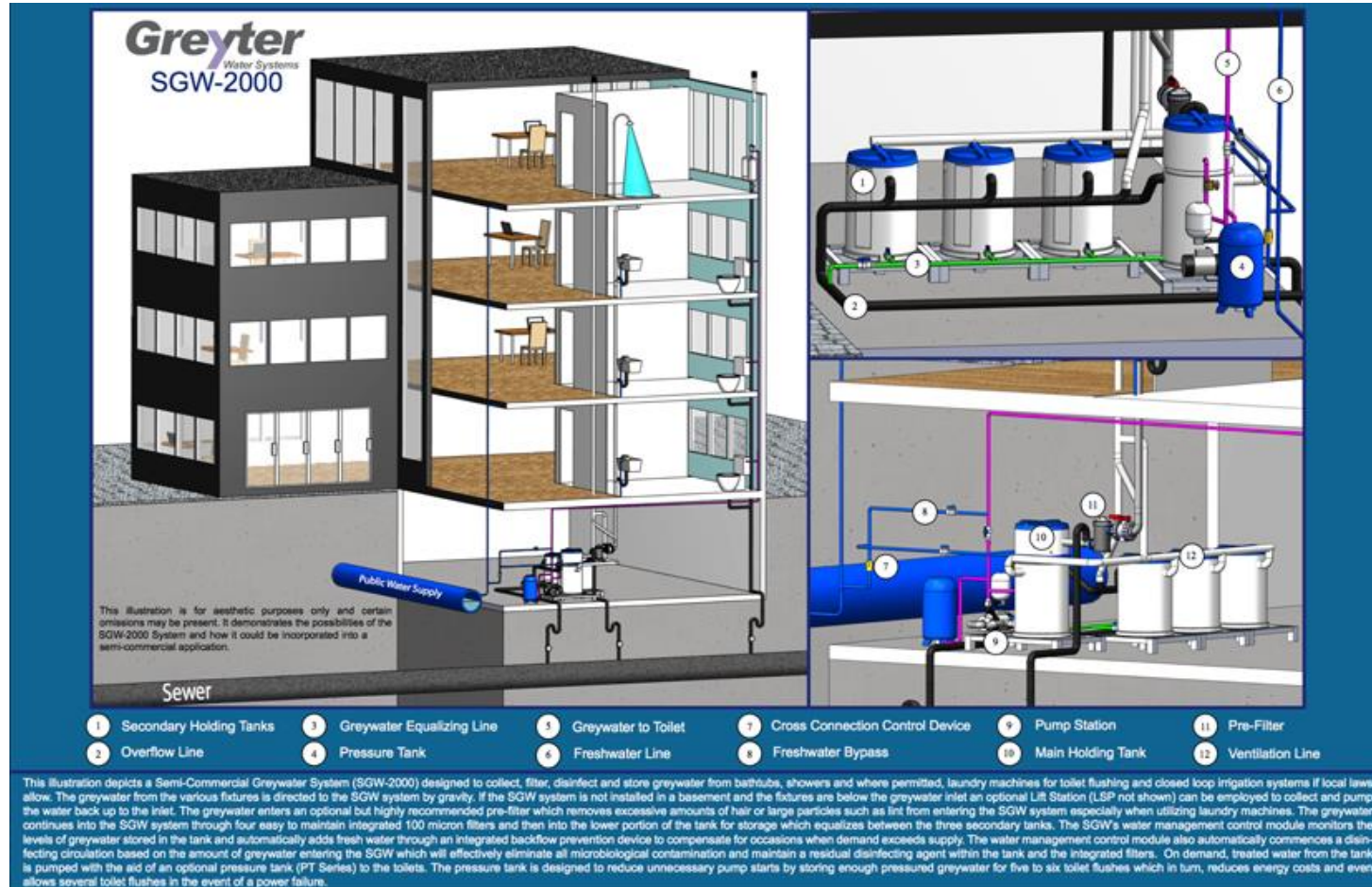
Regulatory requirements

- TCEQ Regulations (TAC Chapter 210, Subchapter F)
 - Connected to public wastewater system
 - Approval not required for domestic use under 400 gal/day
 - Originates from a private residence
 - Diversion to wastewater system
 - Tanks labeled, access restricted, pest habitat eliminated, cleanable
 - Does not create a nuisance or damage water quality
- City of Austin Regulations (2012 UPC Chapter 16 & City Code §25-12-153)
 - Level, sturdy, durable tank
 - Connections to drain or sewer
 - Non-potable labeling & coloring
 - Subsurface, subsoil and mulch basin irrigation
 - Backflow protection required for pressurized systems

Graywater Resources

- Austin Water Conservation Division – (512) 974-2199
- Austin Water Special Services Division (512) 972-1260
- City of Austin Permit Center – (512) 978-4000
- Austin Water's Graywater homepage –
(austintexas.org/department/water-conservation)
- Oasis Designs* (oasisdesign.net)
- Greywater Action* (greywateraction.org)
- San Francisco Graywater Design Manual* (sfwater.org)

***Check with local regulations when referring to guidance not specific to Austin**





A/C Condensate

- High quality water (condensate) collected from Air Conditioner “coils”.
- Reliable yields in warmer weather
- Condensate currently used:
 - LCRA Red Bud Center
 - Austin City Hall

A/C Condensate Regulations

- TCEQ Regulations (TAC Chapter 210, Subchapter E)
 - Level I Authorization allowed for uses satisfying three requirements with no state approval
 - Water must come from approved list of sources (condensate included in list)
 - Condensate must be used in an approved fashion including but not limited to:
 - Irrigation
 - Fire protection
 - Dust suppression
 - Cooling tower makeup (Water Quality testing required)
- City of Austin Regulations (2012 UPC Chapter 16 & City Code §25-12-153)
 - Treatment required when used inside structure
 - Approved uses include:
 - Water closets/Urinals
 - Trap primers
 - Irrigation industrial processes
 - Water features
 - Cooling tower makeup











Questions?

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