IRRIGATION DESIGN REQUIREMENTS AND GUIDELINES

1. INSTALL AN AUTOMATIC IRRIGATION CONTROLLER THAT DOES NOT LOSE PROGRAMMING DATA AFTER A POWER FAILURE. NON-VOLATILE MEMORY IS INSTALLED PER MANUFACTURERS SPECIFICATIONS.

2. INSTALL A RAIN SENSOR.

3. MULCH CAN BE REDUCED FOR NATIVE GRASS AND/OR WILDFLOWER AREAS.

4. A MANUAL SHUT-OFF VALVE IS INSTALLED AS CLOSE AS POSSIBLE TO THE POINT OF CONNECTION.

5. THE MANUFACTURERS RECOMMENDED PRESSURE RANGE FOR THE IRRIGATION COMPONENTS.

6. WELO: THE CALIFORNIA MODEL WATER EFFICIENT LANDSCAPE ORDINANCE THAT REQUIRES WATER CONSERVATION MEASURES TO BE IMPLEMENTED IN LANDSCAPES AND HAS BEEN IN EFFECT SINCE 1990.

7. SYSTEM EFFICIENCY DATA TO BE SHOWN ON IRRIGATION EQUIPMENT LIST.

8. CHANGES ARE NOTED ON AS-BUILT PLAN AND IS PROVIDED AT TIME OF INSPECTION.

9. TURF ALTERNATIVE: A LOW WATER USE GRASS OR GROUND COVER PLANTING THAT SPREADS TO FORM A LOW COVER THAT CAN BE MAINTAINED THROUGH MOWING OR OTHER MEANS.

10. IRRIGATION SYSTEM SHUT OFF VALVE LOCATION IS AS SHOWN ON PLAN OR ON AS-BUILT PLAN.

11. DRIP IRRIGATION CONTROL ZONE ASSEMBLIES ARE INSTALLED AND FUNCTIONING.

12. DRIP IRRIGATION LINES ARE INSTALLED AS SHOWN ON PLANS & DETAILS.

13. DRIP FLUSHOUTS ARE INSTALLED LOWEST POINT OF EACH ZONE AND ARE FUNCTIONING.

14. SYSTEM OPERATES WITHOUT LEAKS, BREAKS OR RUNOFF.

15. EQUIPMENT INSTALLED IS AS SHOWN ON APPROVED IRRIGATION EQUIPMENT LIST. OR EQUAL.

SYMBOLS & DEFINITIONS

1. CLIMATE ADAPTING: NON NATIVE PLANTS WHICH ARE ADAPTED TO LOCAL MICROCLIMATES.

2. BACKYARD PLANTS: CALIFORNIA IN VESTIGIAL PLANTS CONFORM TO A PRIMARY LANDSCAPE DESIGN CONCEPT DURING THE DESIGN PHASE, OR ARE USED IN THE DISPOSITION OF THE LANDSCAPE AS SHOWN ON THE PLANS.

3. WATER CONSERVATION MEASURES TO BE IMPLEMENTED IN LANDSCAPES.

4. ACCORDING TO THE USE OF THE LANDSCAPE PLAN.

5. THE NON-INFRINGEMENT OF ANY INTELLECTUAL PROPERTY RIGHTS OF THIRD PARTIES.

SOIL MANAGEMENT REQUIREMENTS

1. SOL MANAGEMENT PLAN IS DESIGNED TO COMPLY WITH THE PRESCRIPTIVE COMPLIANCE OPTION OF THE CALIFORNIA MODEL WATER EFFICIENT LANDSCAPE ORDINANCE.

2. WATER CONSERVATION MEASURES TO BE IMPLEMENTED IN LANDSCAPES.

3. THE USE OF THE LANDSCAPE PLAN.

4. THE NON-INFRINGEMENT OF ANY INTELLECTUAL PROPERTY RIGHTS OF THIRD PARTIES.

REFERENCE

TITLE 23 CHAPTER 2.7 WELLO: THE WATER EFFICIENT LANDSCAPE ORDINANCE

AGENCY STAMP
1. Adjust layout of planting beds if changed on layout sheet 1.0.
2. Review irrigation valve table to adjust SF areas of valve zones.
3. If areas exceed max subzone flow (3 GPM) divide into additional subzones and enter under subzone column.
4. If areas exceed max zone flow (7 GPM) add a valve and enter SF Aera next to new valve.
5. Draw out new subzone and/or valve area zone on plan in new color.
6. Add valves as needed to valve manifold.
7. Review irrigation legend and check off that all components are shown on adjusted plan.
8. Note any equipment substitutions.
1. INSTALLATION TO BE CONTRACTED WITH A VALID CURRENT CALIFORNIA C-7 CADIUS OR C-13 CONTRACTOR WITH RESIDENTIAL KNOWLEDGE, SKILLS & EXPERIENCE.

2. THE IRRIGATION PLAN IS DETAILED AND ILLUSTRATIVE OF THE WORK TO BE COMPLETED. IRRIGATION EQUIPMENT OR SPRINGS MAY BE SHOWN IN EVALUATED VIEWS FOR GRAPHIC CLARITY. PLEASE REVIEW THE LAYOUT WITH OWNERS PRIOR TO INSTALLATION.

3. VERIFY LOCATION OF SUBSURFACE UTILITIES, PIPES AND STRUCTURES. NOTIFY OWNERS OR THEIR AGENTS PRIOR TO STARING WORK. UTILITIES NOT SHOWN ON THE PLANS BE FOUND DURING EXCAVATION.

4. CAREFULLY INVESTIGATE EXISTING FIELD CONDITIONS AND NOTIFY OWNERS PRIOR TO INSTALLATION.

5. PROVIDE ASSISTANCE AT POINT OF CONNECTION PRIOR TO START OF WORK.

6. CONFIRM MINIMUM STATIC PRESSURE AT THE POINT OF CONNECTION PRIOR TO INSTALLATION.
PERMEABLE PAVING - PATH OR PATIO

-- SCALE: 1"=1'-0"

PERMEABLE PAVING - VEHICLE

-- SCALE: 1/12"="

PERMEABLE INFILTRATION - PEDESTRIAN

-- SCALE: 1/12"

AGGREGATE PAVING - PEDESTRIAN

-- SCALE: 1/12"

GENERAL NOTES:

1. DESIGN STRATEGY: THESE DETAILS ARE PROVIDED TO CREATE OPTIONS FOR PERMEABLE PAVING AND DRAINAGE STRATEGIES THAT PROMOTE STORMWATER INFILTRATION IN LANDSCAPE PATHWAYS. THESE DETAILS HELP COLLECT WATER, RETAIN THE RUN-OFF, AND PROVIDE MORE SOIL, MOISTURE AVAILABILITY FOR LANDSCAPE PLANTS.

2. THESE DETAILS SHOULD BE EVALUATED BY THE SITE ENGINEER AND ADJUSTED TO SITE CONDITIONS.

3. PAVERING DEPTH, WIDTH OF BASE GRAVels, SUB-BASE INTRANSITION, AND CONCRETE REINFORCEMENT SHOULD BE ALL EVALUATED AND ADJUSTED AS NEEDED BY A GEOTECHNICAL ENGINEER.

4. SOIL TYPE AFFECTS THE PERFORMANCE OF THESE DETAILS. CLAY SOILS DO NOT INFILTRATE WELL, SO THERE IS A NEED TO EVALUATE WHETHER THE PERMEABLE/PERVIOUS PAVING DETAILS AND APPROPRIATE FOR SPECIFIC SITES AND ADJUST THEM AS APPROPRIATE TO PROTECT BUILDINGS AND OTHER IMPROVEMENTS.

5. ACCESSIBLE PAVING IS SMOOTH, FIRM, AND HAS A CROSS SLOPE NOT TO EXCEED 2%. RAMP SLOPES SHOULD BE 1:2 MAXIMUM RAMP RAMP WITH HANDRAILS. SEE TITLE 24 OF CALIFORNIA CODE FOR ACCESSIBILITY REQUIREMENTS AND STANDARDS.
1. REVIEW PAVING WITH CIVIL & SEE DETAIL #7 ON SHEET L3.2

SCALE: 1/2"=1'-0"

VARIES W/ DEPTH

SLOPE AWAY FROM BLDG AT 5% INTO SWALE OR DRAINAGE ELEMENT

RAINGARDEN

PIPED INLET

VARIES SEE PLAN

EXTERIOR WALL

@ 0

PLANTINGS OR START PER CODE.

DOWNSPOUT

SLOPE AWAY FROM BLDG

SPLASH BLOCK

SWALE

3" OF RIVER COBBLE

STORMWATER FILTER

2. NO WOOD CHIP OR BARK MULCH IN RAINWATER SYSTEMS TO AVOID CLOGGING

2% STEP DOWN IN CASCADE PER DETAIL

NOTES:

STORM DRAINS

UNDISTURBED SUBGRADE

EXISTING SLOPE 8% OR LESS

BERM; CONSTRUCT WHILE DIGGING BASIN. CAN BE MADE WIDER TO BE A WALKING PATH

INVERT ELEVATION

3" (2) 45 BENDS OR (1) 90 DEGREE (LONG 3"RISER

2 X 3 X 3 DOWNSPOUT ADAPTER

PERMAGRASS AGRASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS

RAINGARDEN DESIGNED FOR CLAY SOIL

PROPERTY RIGHTS OF THIRD PARTIES

PURPOSE OR ANY WARRANTY AS TO THE VALIDITY OF ANY STATUTE OR OTHER IMPE

STATUTES, RULES, REGULATIONS, ORDINANCES AND/OR STATUTE OR OTHER IMPE, AND SONOMA-WINDING SWING WATER PARTNERSHIP, ITS MEMBERS AND DESIGN EMPLOYEES AND LANDSCAPE DESIGN CONSULTANTS

PROJECT OWNER TO ENSURE THAT PLAN ELEMENTS ARE IMPLEMENTED SAFELY AND ACCORDING TO APPLICABLE

IF SLOPE EXCEEDS

RAINGARDENS

PERCAGRASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS AGRAASS

RECEIVED A RECYCLED AGRAASS BASE ROCK

PONDING IS 7".

TOP ELEVATION OF THE BERM AROUND RAINGARDEN.

MINIMUM SLOPE IN THE DIRECTION OF FLOW TO BE 0.5%. IF SLOPE EXCEEDS 0.5%, RAINGARDEN DESIGN TO BE ADJUSTED TO AVOID CLOSING STORM DRAIN.

EXACT SLOPE OF SEE IN PLAN

EXISTING SLOPE IS OR LESS

SLOPE ABOVE 0.5%, RAINGARDEN DESIGNED TO CARRY WATER AND BE CLOSER TO INLET TO PREVENT SWALE OR SHEET FLOW INTO RAINGARDEN

PERFECT TRENCH FOR DRAINAGE

ADJUST SLOPE IN THE DIRECTION OF FLOW TO BE 0.5%. IF SLOPE EXCEEDS 0.5%, RAINGARDEN DESIGN TO BE ADJUSTED TO AVOID CLOSING STORM DRAIN

SCARIFY & AMEND NATIVE SOIL AT BOTTOM OF RAIN GARDEN

SCARIFY & AMEND NATIVE SOIL AT BOTTOM OF RAIN GARDEN

TOP ELEVATION OF THE BERM AROUND RAINGARDEN.

MINIMUM SLOPE IN THE DIRECTION OF FLOW TO BE 0.5%. IF SLOPE EXCEEDS 0.5%, RAINGARDEN DESIGN TO BE ADJUSTED TO AVOID CLOSING STORM DRAIN

SCARIFY & AMEND NATIVE SOIL AT BOTTOM OF RAIN GARDEN

MAX WATER LEVEL 2" ABOVE PEA GRAVEL

PIPE TO OUTLET.

DRAIN INLET STRUCTURE AT TOP PONDING

MAX WATER LEVEL 2" ABOVE PEA GRAVEL

PIPE TO OUTLET.

DRAIN INLET STRUCTURE AT TOP PONDING

MAX WATER LEVEL 2" ABOVE PEA GRAVEL

PIPE TO OUTLET.

DRAIN INLET STRUCTURE AT TOP PONDING

MAX WATER LEVEL 2" ABOVE PEA GRAVEL

PIPE TO OUTLET.

DRAIN INLET STRUCTURE AT TOP PONDING

MAX WATER LEVEL 2" ABOVE PEA GRAVEL

PIPE TO OUTLET.

DRAIN INLET STRUCTURE AT TOP PONDING

MAX WATERLEVEL 2" ABOVE PEA GRAVEL

PIPE TO OUTLET.

DRAIN INLET STRUCTURE AT TOP PONDING

MAX WATERLEVEL 2" ABOVE PEA GRAVEL

PIPE TO OUTLET.

DRAIN INLET STRUCTURE AT TOP PONDING

MAX WATERLEVEL 2" ABOVE PEA GRAVEL

PIPE TO OUTLET.

DRAIN INLET STRUCTURE AT TOP PONDING

MAX WATERLEVEL 2" ABOVE PEA GRAVEL

PIPE TO OUTLET.

DRAIN INLET STRUCTURE AT TOP PONDING

MAX WATERLEVEL 2" ABOVE PEA GRAVEL

PIPE TO OUTLET.

DRAIN INLET STRUCTURE AT TOP PONDING

MAX WATERLEVEL 2" ABOVE PEA GRAVEL

PIPE TO OUTLET.

DRAIN INLET STRUCTURE AT TOP PONDING

MAX WATERLEVEL 2" ABOVE PEA GRAVEL

PIPE TO OUTLET.

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MAX WATERLEVEL 2" ABOVE PEA GRAVEL

PIPE TO OUTLET.

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MAX WATERLEVEL 2" ABOVE PEA GRAVEL

PIPE TO OUTLET.

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MAX WATERLEVEL 2" ABOVE PEA GRAVEL

PIPE TO OUTLET.

DRAIN INLET STRUCTURE AT TOP PONDING

MAX WATERLEVEL 2" ABOVE PEA GRAVEL

PIPE TO OUTLET.
LANDSCAPE TO LAUNDRY SYSTEM OVERVIEW:
A LANDSCAPE TO LAUNDRY SYSTEM CAPTURES UTILITY-USED WATER FROM THE DISCHARGE HOSE OF YOUR WASHING MACHINE AND PUMPS IT OUT TO THE LANDSCAPE THROUGH 1 INCH TUBING. THE SYSTEM DOES NOT ALTER THE EXISTING PLUMBING AND THEREFORE DOES NOT REQUIRE A PERMIT. A THREE-WAY DIVERTER VALVE IS A NECESSARY COMPONENT, ALLOWING YOU TO SEND DISCHARGE WATER BACK TO THE SEWER SYSTEM WHEN NEEDED OR DURING THE RAINY SEASON.

INSTALLATION & DESIGN CONSIDERATIONS:
- PROFESSIONAL, ESPECIALLY IF THE WASHING MACHINE IS LOCATED ON AN EXTERNAL WALL AND IS IN CLOSE PROXIMITY TO THE EXISTING PLUMBING AND THEREFORE DOES NOT REQUIRE A PERMIT. A THREE-WAY DIVERTER VALVE IS A NECESSARY COMPONENT TO CONTAIN GRAYWATER ON SITE.
- DIRECT AND CONTAIN GRAYWATER WITHIN MULCH BASINS (IRRIGATION OR DISPOSAL FIELD) BELOW THE GROUND.
- MINIMIZE CONTACT WITH HUMANS AND ANIMALS.
- NOTIFY ENFORCING AGENCY.

RECOMMENDED DESIGN:
- TO ENSURE PLANT SURVIVAL, AGITATE SOAPS AND DETERGENTS THAT CONTAIN BORON, SODIUM AND CHLORINE.
- COMPONENETS: THE FOLLOWING LIST OF COMMERCIAL DETERGENTS ARE RECOMMENDED FOR USE WITH LAUNDRY TO LANDSCAPE GRAYWATER SYSTEMS.

ADDITIONAL INFORMATION:
- DETERGENTS ABLE TO BE REDIRECTED TO SEWER.
- NO POSSIBLE WATER CONNECTION.
- NO MINIMIZE CONTACT WITH HUMANS AND ANIMALS.
- NO DIVERT WATER TO THE SEWER IF IT CONTAINS DANGERS, OILS, OTHER CHEMICALS.
- GRAYWATER DIVERTED TO LANDSCAPE SHALL NOT CONTAIN HAZARDOUS CHEMICALS.
- PREVENT INSTALLATION THAT VIOLATES OTHER CODE OR LAWS.
- POST OPERATION AND MAINTENANCE MANUAL.

CALCULATIONS SECTION:
1. ESTIMATE YOUR GRAYWATER SUPPLY USING THE CALCULATION PROCESS IN CALCULATIONS SECTION BELOW.
2. COMPLETE: CALCULATIONS TO DETERMINE THE MINIMUM REQUIRED MULCH BASINS SIZE PER YOUR Soil TYPE.
3. MEASURE ACTUAL IRRIGATION FIELD AREAS ON SITE AND DEVELOP NUMBER AND SIZE OF MULCH BASINS TO USE.
4. REVIEW REQUIRED SETBACKS SHOWN IN CPC TABLE 1824 THIS SHEET.
5. DEVELOP A SITE PLAN ILLUSTRATING THE FOLLOWING: REQUIRED SETBACKS, PROPOSED MULCH BASINS, VALUE LOCATIONS, PUMPING DIAGRAM, AND TREE AND PLANT LOCATIONS TO BENEFIT FROM GRAYWATER.
6. IF BUILDING DESIGN AND CONSTRUCTION PROCEED, REVIEW THE SITE PLAN AND INSTALLATION OF MEASURED DRAINAGE OR GRAYWATER SUPPLIED LANDSCAPE AREA.

LAUNDRY TO LANDSCAPE: Graywater System Example:
- Secure auto vent to wall. (minimum) 1.5 Feet
- Secure auto vent with no drip (minimum) 1 foot
- Equip with vacuum breaker
- "Exposed piping needs to be labeled every 5 feet or "Caution: Nonpotable Graywater. Do Not Drink."
- "*Increase distance if adjacent properly has hardscape or is lower in elevation.
- Fruits and vegetable plants are safe to irrigate with graywater as long as the edible portion doesn’t touch the ground and/or mulch.

APPLICABLE INSTRUCTIONS:
1. ESTIMATE YOUR GRAYWATER SUPPLY USING THE CALCULATION PROCESS IN CALCULATIONS SECTION BELOW.
2. COMPLETE: CALCULATIONS TO DETERMINE THE MINIMUM REQUIRED MULCH BASINS SIZE PER YOUR Soil TYPE.
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6. IF BUILDING DESIGN AND CONSTRUCTION PROCEED, REVIEW THE SITE PLAN AND INSTALLATION OF MEASURED DRAINAGE OR GRAYWATER SUPPLIED LANDSCAPE AREA.

DISCLAIMER OF LIABILITY:
- LIQUID: ECOLOGICALLY DANGEROUS. LIQUID LIFE TREE LAUNDRY LIQUID.
- AUTOMATIC DETERGENT: LIQUID ECOLOGICALLY DANGEROUS. LIQUID LIFE TREE LAUNDRY LIQUID.
- AUTOMATIC DETERGENT: LIQUID ECOLOGICALLY DANGEROUS. LIQUID LIFE TREE LAUNDRY LIQUID.
- AUTOMATIC DETERGENT: LIQUID ECOLOGICALLY DANGEROUS. LIQUID LIFE TREE LAUNDRY LIQUID.

This diagram is not drawn to scale and is provided for planning purposes only. It is your responsibility to properly design, install, maintain, and use your landscape to landscape graywater system (graywater system). If you are unsure of the intricacies of your plumbing system or how to properly design or install a graywater system, please consult with a professional. The District does not accept any liability and responsibility for any direct, special, indirect or consequential loss or damage whatsoever arising out of or in connection with providing any access to this diagram.
LANDSCAPE VIA MULCH BASIN OUTLETS. PLUMBING FOR GRAYWATER SOURCES MUST BE
INSTALLATION & DESIGN CONSIDERATIONS:
BRANCHED DRAIN SYSTEM OVERVIEW:
A BRANCHED DRAIN SYSTEM DISTRIBUTES GRAYWATER FROM SHOWERS AND/OR BATHROOM SINKS THROUGH A SERIES OF BRANCHED 1.5-INCH OR 2-INCH PIPES AND IS DISPERSED INTO THE LANDSCAPE VIA MULCH BASIN OUTLETS. PLUMBING FOR GRAYWATER SOURCES MUST BE SEPARATED FROM BLACK WATER SOURCES (TOILET, KITCHEN SINK). IF POSSIBLE DUE TO CLOSE PROXIMITY, A LAUNDRY MACHINE CAN ALSO BE ADDED INTO THE DISTRIBUTION PIPING. THIS SYSTEM IS DRIVEN BY GRAVITY FLOW AS NO PRESSURE IS PROVIDED BY A WASHING MACHINE PUMP OR ANY OTHER PUMP. AS THIS SYSTEM REQUIRES CUTTING INTO EXISTING SEWER PIPES, A PERMIT IS REQUIRED. IF INSTALLING AS PART OF NEW BUILDING CONSTRUCTION OR REMODEL, SHOW SEPARATED PLUMBING IN PLAN SETS AND SUBMIT OUT PIPING FOR EXTERIOR GRAYWATER SYSTEM COMPONENTS DURING BUILDING CONSTRUCTION.

BRANCHED DRAIN GRAYWATER REQUIREMENTS TO COMPLY WITH CALIFORNIA PLUMBING CODE (CPC) STANDARDS:
- NOTIFY ENFORCING AGENCY AND SECURE PERMIT FOR INTERIOR PLUMBING COMPONENTS
- BE ABLE TO REDIRECT TO SEWER
- NO POTABLE WATER CONNECTION
- CONTAIN GRAYWATER ONSITE
- DIRECT AND CONTAIN GRAYWATER WITHIN MULCH BASINS (IRRIGATION OR DISPOSAL FIELD) BELOW THE GROUND SURFACE
- NO PONDING OR RUNOFF
- OUTLETS COVERED AT LEAST 2 INCHES OF MULCH, ROCK, OR A SHIELD (E.G. VALVE BOX LID)
- MINIMIZE CONTACT WITH HUMANS AND ANIMALS
- DIVERT WATER TO THE SEWER IF IT CONTAINS DIAPERS, OIL, OTHER CHEMICALS
- GRAYWATER DIVERTED TO LANDSCAPE SHALL NOT CONTAIN HAZARDOUS CHEMICALS
- FOLLOW ALL APPLICABLE CODE OR LAWS
- POST OPERATION AND MAINTENANCE MANUAL
- THE SYSTEM SHALL HAVE A DISCHARGE CAPACITY OF 250 GALLONS PER DAY OR LESS

INSTALLATION & DESIGN CONSIDERATIONS:
WITH A HIGHER POTENTIAL VOLUME OF WATER COMING FROM A SHOWER AND SINK, A BRANCHED DRAIN SYSTEM IS BEST SUITED FOR IRRIGATING TREES, BUSHES, SHRUBS, AND OTHER LARGER PERENNIAL PLANTS. THIS IS A SIMPLE SYSTEM AND DOES NOT REQUIRE ELECTRICITY OR A PUMP. HOWEVER, THE LANDSCAPE AREA MUST BE LOWER IN ELEVATION THAN THE GRAYWATER SOURCE, AND THE ENTIRE SYSTEM MUST HAVE A DOWNWARD SLOPE OF 2% (1/2 INCH PER FOOT) TO ENSURE EVEN DISTRIBUTION.

INSTALLATION DIFFICULTY DEPENDS ON THE EXISTING HOUSEHOLD PLUMBING, ACCESS TO PIPES AND THE SLOPE OF LANDSCAPE. WHILE OUTDOOR COMPONENTS CAN BE INSTALLED BY A HOMEOWNER, A PROFESSIONAL PLUMBER IS NEEDED FOR INSTALLATION OF A 3-WAY DIVERTER VALVE ON THE SEWER LINE. THE HOMEOWNER HAS THE OPTION TO INSTALL AN ACTUATOR, WHICH ALLOWS EASY DIVERSION OF GRAYWATER BETWEEN LANDSCAPE AND THE SEWER LINE.

SYSTEM COSTS & REBATES: THE COSTS CAN RANGE FROM A THOUSAND DOLLARS WHEN PRIMARILY INSTALLED BY A HOMEOWNER TO SEVERAL THOUSAND IF INSTALLED BY A PROFESSIONAL. WHILE MORE COSTLY TO CONSTRUCT THAN A LAUNDRY TO LANDSCAPE SYSTEM, A BRANCHED DRAIN SYSTEM Requires little maintenance and lasts a long time, since it has no moving parts to break.

RECOMMENDED SOAPS:
- MORE SOAPS ARE COMING OUT ALL THE TIME, BUT IT IS ALWAYS IMPORTANT TO READ THE INGREDIENTS LIST BELOW TO RXESE THAT ARE KNOWN TO BE GRAYWATER COMPLIANT.
  - OASIS - ALL-PURPOSE CLEANER FOR HAND-WASHING, BODY & SHAMPOO
  - DR. BRONNER’S MAGIC SOAPS (LIQUID)
  - AUBREY ORGANICS SHAMPOO

APPLICANT INSTRUCTIONS:
1. ESTIMATE YOUR GRAYWATER SUPPLY USING THE CALCULATION SECTION THIS SHEET.
2. ESTIMATE MULCH BASIN SIZES, AREA AND VOLUME USING TABLE 3.
3. DEVELOP A GRAYWATER SITE PLAN SHOWING THE PERMIT APPLICATION. SHOW ALL THE PLAN ELEMENTS LISTED IN #4 - GRAYWATER PLAN BELOW. REVIEW THE SAMPLE PLAN SHOWN IN DETAIL #1 THIS SHEET. SHOW TREE AND PLANT LOCATIONS TO BENEFIT FROM GREYWATER.
4. SUBMIT FOR BUILDING PERMIT EITHER WITH FULL SITE DRAWINGS OR AS A SEPARATE SUBMITTAL.
5. REVIEW PIPE AND VALVE LOCATIONS WITH ARCHITECT, ENGINEER AND CONTRACTOR TO ENSURE THERE ARE NO CONFLICTS WITH OTHER SITE ELEMENTS. CONFIRM COMPONENTS TO BE INSTALLED AT TIME OF FOUNDATION SYSTEM CONSTRUCTION, INCLUDING PIPE STUB OUT FOR EXTERIOR GRAYWATER SYSTEM DEVELOPMENT.

CALCULATIONS SECTION:
1. Estimate Daily Graywater Production

<table>
<thead>
<tr>
<th>Calculation Method</th>
<th>Water Use (gals/day)</th>
<th>Graywater (gals/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average daily water use (1) + 30 days</td>
<td>120</td>
<td>0.8</td>
</tr>
<tr>
<td>Average daily water use (.30 days)</td>
<td>90</td>
<td>0.6</td>
</tr>
<tr>
<td>Average daily water use</td>
<td>60</td>
<td>0.4</td>
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TOTAL X .22

<table>
<thead>
<tr>
<th>Calculation Method</th>
<th>Water Use (gals/day)</th>
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</tr>
<tr>
<td>Avg. water use</td>
<td>60</td>
<td>0.4</td>
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</table>

TOTAL X .22

2. Determine Mulch Basin Required Volume

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<tr>
<th>Mulch Basin Volume (gals/day)</th>
<th>Calculation Method</th>
<th>Graywater (gals/day)</th>
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<tbody>
<tr>
<td>0 + 7.48 gal/ft²</td>
<td>Total surface area</td>
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</tr>
<tr>
<td>0</td>
<td>1.1</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>1.1</td>
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</tr>
<tr>
<td>50</td>
<td>1.1</td>
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</tr>
<tr>
<td>100</td>
<td>1.1</td>
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TOTAL X .22

3. Determine Minimum Mulch Basin Size

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<th>Minimum Mulch Basin Size</th>
<th>Calculation Method</th>
<th>Graywater (gals/day)</th>
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</thead>
<tbody>
<tr>
<td>0</td>
<td>Total volume required</td>
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</tr>
<tr>
<td>0</td>
<td>1.1</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>1.1</td>
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</tr>
<tr>
<td>50</td>
<td>1.1</td>
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</tr>
<tr>
<td>100</td>
<td>1.1</td>
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</table>

TOTAL X .22

4. BRANCHED DRAIN SYSTEM DIAGRAM AND INSTALL PHOTO

5. Compare Water Use and Graywater

<table>
<thead>
<tr>
<th>Water Use (gals/day)</th>
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</tr>
</thead>
<tbody>
<tr>
<td>120</td>
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<tr>
<td>60</td>
<td>0.4</td>
</tr>
</tbody>
</table>

TOTAL X .22

Note: Data shown is a sample from sample scenario.
1. **A Rainwater Catchment System MAY NOT REQUIRE A BUILDING PERMIT** provided all of the following are met (California Plumbing Code 1601.3 (I): 2)

   - Water will be used for outdoor non-spray irrigation.
   - Maximum storage capacity of 3,500 gallons.
   - Tank is supported directly upon grade.
   - Does not require electrical power or makeup water supply connection (see note 2 and 3).

2. Tanks can be daisy-chained at point "D" using flexible pipe only to reduce chance of leakage in earthquakes.

3. If city water plumbed to tank for makeup using float valve or manually operated valve, then a permit is required and an air gap is required.

   - Does not require electrical power or makeup water supply connection (see note 2 and 3).

4. There are no required setbacks from buildings or side/property lines, though a conversation with your neighbor could be helpful.

5. Fire safer leaf guard.

6. Clean gravel to improve drainage from drilled holes.

**SECTION VIEW RAIN GARDEN**

- A. Preferred dry conveyance if tanks are next to downspout
- B. Overflow, 3 in. drainage pipe sloped 2 percent for horizontal sections
- C. 1030 gallon Bushman Slimline rain harvesting tank or equivalent
- D. Hose bib or optional connection to pump and pressure tank (see note 2)
- E. 4 inches compacted base rock with 3 inches of pea gravel on top
- F. Overflow to rain garden, drainage, or splashblock
- G. 3 in. PVC drained tee
- H. 6 in. 15/16" normal downspout
- I. Optional Bushman leaf diverters (with 20x20 screen if using wet conveyance) (redundant with leaf guard on gutters)
- J. Bushman first flush filters (to keep emitter from clogging)
- K. Bushman first flush filters (to keep emitter from clogging)
- L. 3 in. PVC drain pipe
- M. Optional Bushman leaf diverter (with 20x20 screen if using wet conveyance) (redundant with leaf guard on gutters)
- N. 3 in. PVC drain pipe reducer
- O. 4 in. to 3 in. PVC drain pipe reducer
- P. Drain pipe for the first flush (this removes the first, dirty water from a rainstorm)
- Q. 4 in. to 3 in. PVC drain reducer
- R. Bushman float ball
- S. Bushman drip emitter to drain dirty water between storms
- T. "Wet" conveyance 3 in. drain pipe
- U. Three separate 5/32 in. holes to drain water for mosquito control
- V. Clean gravel to improve drainage from drilled holes