POST-CONSTRUCTION REQUIREMENTS

STEP 5: POST-CONSTRUCTION CERTIFICATION

TO BE SIGNED BY APPLICANT

I have complied with the requirements of the PRESCRIPTIVE COMPLIANCE OPTION of the WATER EFFICIENT LANDSCAPE ORDINANCE

APPLICANT NAME (ELECTRONIC SIGNATURE)

STEP 6: WELO FINAL INSPECTION CHECKLIST

YES NO NA

PLANTING

1. All plants installed are listed on plans or on approved plant substitution list.

2. 75% or more of the plants are low water use per WUCOLS Region 1

3. No standard high water use turf has been installed

4. Turf composition is at least 25% low water use

5. Trees are located for shade on garden areas and to provide solar access for solar panels on roofs.

IRRIGATION

1. Compost has been applied at a rate of at least four (4) cubic yards per one thousand (1,000) square feet area. Compost is delivered in a manner consistent to a depth of six (6) inches into the landscape area.

2. A three (3) inch layer of organic mulch has been applied over all shrub planting areas

3. Rain sensor

4. Controller is accurately programmed

5. Controller is installed

6. Controller chart is placed in controller housing or adjacent to controller

7. Controller chart clearly indicates state of energy values

8. Controller chart clearly indicates July irrigation schedule for each zone and includes programs, days per week, start time, and run time

9. Irrigation system shut off valve is installed

10. Irrigation system shutoff valve location is as shown on plan or on as-built

11. Drip irrigation control, zone assembly is 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 is installed as shown on approved irrigation equipment list or Equal General

16. Changes are noted on as-built plan and is provided at time of inspection

SYMBOLS & DEFINITIONS

1. CLIMATE ADAPTED: NON NATIVE PLANTS WHICH ARE ADAPTED TO LOCAL MICROCLIMATES. RAINWATER AND STORMWATER ELEMENTS SHOULD BE REVIEWED WITH SITE DESIGN TEAM AND GENERAL CONTRACTOR. CHANGES ARE NOTED ON AS-BUILT PLAN AND IS PROVIDED AT TIME OF INSPECTION

2. LOW WATER USE OR CLIMATE-ADAPTED SPECIES THAT REQUIRE LITTLE OR NO SUMMER WATER ARE SELECTED FOR AT LEAST 75 PERCENT OF THE PLANTED AND IRRIGATED AREA

3. HYDROZONE: AN AREA OF THE LANDSCAPE HAVING PLANTS WITH SIMILAR WATER NEEDS AND ROOTING DEPTHS AND THE SAME GROWTH AND TO PREVENT RUNOFF

4. Tree irrigation: Tree irrigation

5. Microclimate: The climate within each different sub-area of the landscape which depends on its sun and wind exposure, proximity to reflective surfaces, plant density and other factors

6. Water the California model water efficient landscape ordinances that requires water conservation measures to be installed automatically using weather or moisture soil data

7. Water Conservation: The practice of reducing the amount of water needed by plants to thrive in warm period. Plants are grown in an environment that allows for the most efficient use of water and minimum waste. (NATIONAL AGRICULTURAL WATER USERS ASSOCIATION)

8. Turf: A ground cover surface of coarse grades (CONVENTIONAL LAWN)

9. Turf Alternatives: A low water use grass or ground cover plantings that spreads to form a low cover that can be maintained with minimal irrigation

10. Weather sensor: Sensor connected to the irrigation controller which detects rain, freeze, wind, etc. and suspends or adjusts irrigation operation

REFERENCE

TITL E 23 CHAPTER 2.7 RWI-1.0 THE MODEL WATER EFFICIENT LANDSCAPE ORDINANCE

RWI-1.0 SECTIONS

485.1 C (D) & (E) 491.6 DISTRIBUTION

491.6 DISTRIBUTION

D (A) PROJECT INFORMATION

D (B) LANDSCAPE DOCUMENTATION PACKAGE

D (C) IRRIGATION DESIGN PLAN

D (D) MINIMUM FINAL INSPECTION CHECKLIST

D (E) INSPECTION CONTROLLER

D (F) WEATHER SENSOR

PRE CONSTRUCTION - APPLICATION PERMIT BY OWNER - FILL IN AREAS BELOW

CONFIRM APPLICABILITY

THIS PLAN IS APPLICABLE FOR USE FOR:

1. FRONT YARDS LANDSCAPES UP TO 2,000 SF WHICH THE LOCAL JURISDICTION PERMIT APPLICABLE STANDARDS AND IN THE PRESCRIPTIVE COMPLIANCE MEASURES SEE APPENDIX D OF THIS WLO

STEP 1: PROJECT INFORMATION

TO BE FILLED OUT BY APPLICANT

DATE:

PROJECT NAME:

PROJECT ADDRESS:

TOTAL PROJECT LANDSCAPE AREA (IN SQ.): ______________________

MEDIUM WATER USE PLANT MATERIAL AREA (IN SF): ______________________

LOW TO VERY LOW NON-TURF PLANT MATERIAL AREA (IN SF): ______________________

PROJECT TYPE: NEW RESIDENTIAL

WATER SUPPLY TYPE: (ICEBERG effectively redefined)

LOCAL WATER PURVEYOR:

STEP 2: SIGN PRE-CONSTRUCTION AGREEMENT

TO BY SIGNED BY APPLICANT

I AGREE TO COMPLY WITH THE REQUIREMENTS OF THE PRESCRIPTIVE COMPLIANCE OPTION OF THE WATER EFFICIENT LANDSCAPE ORDINANCE

APPLICANT NAME (ELECTRONIC SIGNATURE)

STEP 3: PROVIDE PERMIT APPLICATION PLANS

PLANS TO BE REQUIRED PLANT

L-0.0 PERMIT COVER SHEET

L-0.1 LANDSCAPE DESIGN PLAN

L-0.2 IRRIGATION DESIGN PLAN

L-0.3 PLANTING DETAILS

L-0.4 DRAINAGE DETAILS

L-0.5 LANDSCAPE PLANS

APPLICATION SIGNATURE DATE

APPLICANT SIGNATURE DATE

APPENDIX D OF MWELO:

BY USING THESE PLANS, I AGREE TO DEFEND, INDEMNIFY AND HOLD HARMLESS THE SONOMA-MARIN SAVING WATER PARTNERSHIP, ITS MEMBERS AND LANDSCAPE DESIGN CONSULTANTS AND ALL RELATED PERSONS, INCLUDING, BUT NOT LIMITED TO, THE LOCAL WATER PURVEYORS, THEIR DIRECTORS, OFFICERS, AGENTS, EMPLOYEES AND LANDSCAPE DESIGN CONSULTANTS TAKING ANY AND ALL LEGAL ACTION ARISING OUT OF OR RESULTING FROM THE USE OF THIS LANDSCAPE PLAN. I UNDERSTAND THAT IT IS MY RESPONSIBILITY AS THE PROJECT OWNER TO ENSURE THAT PLAN ELEMENTS ARE IMPLEMENTED SAFELY AND ACCORDING TO APPLICABLE STATUTORY, RULES, REGULATIONS, ORDINANCES, AGREEMENTS AND CONTRACTS.
MEASURE ENTIRE FRONT YARD AREA. SUBTRACT HARDSCAPE AREAS TO GET THE TOTAL SQUARE FEET OF PLANTED AND IRRIGATED AREA. ENTER THIS

REVIEW IRRIGATION SHEETS AND INSTALL SLEEVES UNDER PAVING SURFACES IN THEIR CORRECT LOCATION.

4"

3

INDICATE ANY SUBSTITUTIONS TO THE PLANTINGS BY CROSSING OUT THE LISTED PLANTS AND WRITING THE SUBSTITUTION BELOW IN RED INK. MAKE SURE

REFER TO PLANTING DETAILS ON SHEET L3.2.

THE GARDEN IS DESIGNED TO CAPTURE AND INFILTRATE SOME STORM WATER ON SITE. WHEN THE FLOW IS DIRECTED TO A SWALE OR RAIN GARDEN, IT

ADJUST ORIENTATION OF NORTH ARROW TO SITE CONDITION.

PLANTING DESIGN FOR FULL COVER WITHIN 3 YEARS.

MOVE TO THE IRRIGATION PLAN AND FILL IN THE AREAS INDICATED ON THAT SHEET.

FILL IN PLANT WATER USE TABLE.

APPLICANT INSTRUCTIONS:

1. MEASURE ENTIRE FRONT YARD AREA. SUBTRACT HARDSCAPE AREAS TO GET THE TOTAL SQUARE FEET OF PLANTED AND IRRIGATED AREA. ENTER THIS NUMBER IN THE PLANT WATER USE TABLE ON THIS SHEET.

2. IF NEEDED USE A RED PEN TO ADJUST THE LAYOUT OF DRAINAGE, PATHS AND PLANTING AREAS TO FIT YOUR YARD.

3. ADJUST ORIENTATION OF NORTH ARROW TO SITE CONDITION.

4. ADD ANY EXISTING TREES IN RED ON THE PLAN. ADJUST TREE Locations IF NEEDED TO FIT YOUR SITE.

5. FULL IN PLANT WATER USE TABLE

6. INSURE LESS THAN 25% OF PLANTED AREA IS MEDIUM WATER USE PLANTING.

7. IN THE LEGENDS, LIST THE HARDSCAPE MATERIALS YOU WILL BE USING AND ON DETAIL SHEETS L3.0-1.1 & L3.2

8. INDICATE ANY SUBSTITUTIONS TO THE PLANTINGS BY CROSSING OUT THE LISTED PLANTS AND WRITING THE SUBSTITUTION BELOW IN RED INK. MAKE SURE THE PLANTS USED HAVE MATCHING WATER USE AND ARE ROUGHLY THE SAME SIZE (SEE SONOMA-MARIN SAVING WATER PARTNERSHIP)

9. MORE TO THE IRRIGATION PLAN AND FILL IN THE AREAS INDICATED ON THAT SHEET.

NOTE:

1. PLANTING DESIGN FOR FULL COVER WITHIN 3 YEARS.

2. THE GARDEN IS DESIGNED TO CAPTURE AND INFILTRATE SOME STORM WATER ON SITE. WHEN THE FLOW IS DIRECTED TO A SWALE OR RAIN GARDEN, IT NEEDS AN OVERFLOW OUTLET THAT WANTS GROWTH. OPTIONS ARE PROVIDED ON THE DETAIL SHEETS. SPLASH BLOCS AND OUTLETs IN PLANTING BEDS ARE MEANT TO SPREAD THE FLOW TO SHEETFLOW OVER PLANTING AREAS AND NO OVERFLOW DEVICE IS NEEDED.

3. REVIEW IRRIGATION SHEETS AND INSTALL SLEEVES UNDER PAVING SURFACES IN THEIR CORRECT LOCATION.

**SEE SHEETS L3.0-3.2 FOR MATERIALS OPTIONS**

PLANTING LEGEND

PLANTING LOW WATER USE

PLANTING MED WATER USE

PLANTING HIGH WATER USE

PLANTING WATER USE TABLE

*SEE MASTER PLANT LIST FOR PLANT SUBSTITUTIONS AND SHADE ALTERNATES, AVAILABLE FROM SONOMA-MARIN SAVING WATER PARTNERSHIP*
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 adjusted plan.
4. If areas exceed max zone flow (7 GPM) add a valve and enter SF area next to new valve.
5. Draw new subzone and/or valve zone area on plan in new color.
6. Add valve 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.
IRRIGATION NOTES

1. INSTALLATION TO BE CONTRACTED WITH A VALID CURRENT CALIFORNIA C-27 LICENCEE OR HOMEOWNER WITH RELEVANT KNOWLEDGE, SKILLS & EXPERIENCE.

2. THE IRRIGATION PLAN & INDIANTS & INDICATIVE OF THE WORK TO BE COMPLETED. IRRIGATION EQUIPMENT OR SPRINGS MAY BE SHOWN IN PAVED AREAS FOR GRADING PURPOSES. OWNER TO PROVIDE ALL NEEDED EQUIPMENT, SUPPLIES & SERVICES, WORK TO BE COMPLETED IN ACCORDANCE WITH THESE PLANS & CONTRACT.

3. VERIFY LOCATION OF SUBSURFACE UTILITIES, PIPES & STRUCTURES. NOTIFY OWNERS RESPONSIBLE FOR UTILITIES OR OTHER WORK NOT SHOWN ON THE PLANS BE FOUND DURING EXCAVATION.

4. CAREFULLY INVESTIGATE EXISTING FIELD CONDITIONS AND NOTIFY OWNER'S REPRESENTATIVE IF STATIC PRESSURE IS LOWER THAN REQUIRED. IF STATIC PRESSURE IS HIGHER THAN 7 PSI, INSTALL AN ANTI-SIPHON VALVE MANIFOLD AS SHOWN IN DETAIL AND PER MANUFACTURER'S INSTRUCTIONS.

5. CONFIRM ADEQUATE GPM AT POINT OF CONNECTION PRIOR TO START OF WORK.

6. CONFIRM MINIMUM STATIC PRESSURE AT THE POINT OF CONNECTION PRIOR TO START OF WORK.

7. NOTIFY OWNERS REPRESENTATIVE IF STATIC PRESSURE IS LOWER THAN REQUIRED. IF STATIC PRESSURE IS HIGHER THAN 7 PSI, INSTALL AN ANTI-SIPHON VALVE MANIFOLD AS SHOWN IN DETAIL AND PER MANUFACTURER'S INSTRUCTIONS.

8. MAKE IRRIGATION PORT OF CONNECTION AS INDICATED ON PLAN AND CONNECT WITH OTHER WORK AS REQUIRED. ENSURE LOCATION TO BE APPROVED BY OWNERS REPRESENTATIVE PRIOR TO INSTALLATION.

9. INSTALL IRRIGATION CONTROLLER IN LOCATION APPROVED BY OWNERS REPRESENTATIVE. ENSURE 120 VOLT A.C. ELECTRICAL SUPPLY IS PROVIDED AND IN IMMEDIATE VICINITY. INSTALL AS DETAILED AND RECOMMENDED IN MANUFACTURER'S INSTRUCTIONS.

10. MOUNT WEATHER SENSOR ON EXTERIOR WALL OR GLASS WHERE IT WILL BE EXPOSED TO UNINTERRUPTED SIGNALS. INSTALL PER MANUFACTURER'S INSTRUCTIONS.

11. BACKFLOW PREVENTION IS REQUIRED. IF PROVIDED BY ANTI-SIPHON VALVES, INSTALLATION MUST BE APPROVED BACKFLOW PREVENTION DEVICE MUST BE INSTALLED.

12. INSTALL BACKFLOW PREVENTION AT POOL UPSTREAM OF BACKFLOW PREVENTION (ANTI-SIPHON VALUES)

13. ENSURE THAT ALL COMPONENTS ARE CONNECTED AND OPERATIONAL. PROVIDE PVC SCH 40 SLEEVES FOR ALL PIPING AND WIRE UNDER PAVING. INSTALL AS DETAILED AND RECOMMENDED IN MANUFACTURER'S INSTRUCTIONS.

14. ENSURE THAT SLEEVES ARE SIZED ADEQUATELY TO CONTAIN PIPES BEING EXTENDED. INSTALL AS DETAILED AND RECOMMENDED IN MANUFACTURER'S INSTRUCTIONS.

15. ENSURE ADEQUATE PIPE SIZE TO PROVIDE REQUIRED FLOW.

16. PIPE COVER: SEE DETAIL

17. INSTALL ALL PLASTIC PIPING IN TRENCHES IN A SERPENTINE MANNER.

18. PROVIDE SEAFLO VALVE BOXES FOR PLASTIC PIPE, PIPE TRANSITION AND FUSIBILITY.

19. INSTALL ISOLATION VALVE AT POC UPSTREAM OF BACKFLOW PREVENTER. EXCEED THE MINIMUM Diameter PROVIDED IN THE SYSTEM DESIGN.

20. PROVIDE CONTROLLER SCHEDULE.

21. PROVIDE CONTROLLER SCHEDULE.

22. INSTALL WATER PRESSURE REGULATOR DOWNSTREAM OF BACKFLOW PREVENTER. ADJUST PRESSURE TEST PRIOR TO BACKFILLING, PROVIDE RESULTS TO OWNER'S REPRESENTATIVE.

23. INSTALL WATER PRESSURE REGULATOR DOWNSTREAM OF BACKFLOW PREVENTER. ADJUST PRESSURE TEST PRIOR TO BACKFILLING, PROVIDE RESULTS TO OWNER'S REPRESENTATIVE.

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30. STAKE DRIP TUBING IN PLACE @ 2 FT O.C. MAX.

31. INSTALL ALL OPTICAL DESIGN INTO IN-LINE TUBING.

32. MAXIMUM LENGTH OF DRIP TUBING IS 200' IN ANY DIRECTION FROM WATER SOURCE.

33. OPEN LINN ENDS AND FLUSH THROUGHLY BEFORE INSTALLATION OF END CAPS.

34. INSTALL END CAPS AFTER INSTALLING RISERS AND PRIOR TO INSTALLING AND/OR RECONNECTION TO VALVES.

35. FILL ALL EXCAVATIONS WITH COMPACTION BAGALL IN TWO MECHANICALLY MOWABLE AREAS FOR GRAPHIC CLARITY. OBTAIN APPROVAL OF LAYOUT FROM OWNER'S REPRESENTATIVE OF ANY POTENTIAL CONFLICT WITH DESIGN.

36. PRESSURE TEST PRIOR TO BACKFILLING, PROVIDE RESULTS TO OWNER'S REPRESENTATIVE.

37. FILL ALL EXCAVATIONS WITH COMPACTION BAGALL IN TWO MECHANICALLY MOWABLE AREAS FOR GRAPHIC CLARITY. OBTAIN APPROVAL OF LAYOUT FROM OWNER'S REPRESENTATIVE OF ANY POTENTIAL CONFLICT WITH DESIGN.

38. PERFORM CONTINUOUS TEST ON A DAILY BASIS AS REQUIRED TO PROVIDE FULL COVERAGE OF THE AREA.
L-3.0
LID PAVING DETAILS

1. DESIGN STRATEGY: THESE DETAILS ARE PROVIDED TO CREATE OPTIONS FOR PERMEABLE PAVING AND DRAINAGE STRATEGIES THAT PROMOTE INFILTRATION IN LANDSCAPE PURPOSE OR ANY WARRANTY AS TO THE VALIDITY OF ANY MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR WARRANTIES, WHETHER WRITTEN OR ORAL, OR EXPRESS OR NOTES:

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

3. PAVING DEPTH, DEPTH OF BASE GRAVELS, SUB-BASE PREPARATION AND CONCRETE REINFORCEMENT SHOULD ALL BE EVALUATED AND ADJUSTED AS NEEDED BY A GEOTEHNCIAL 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%. RUNNING SLOPE SHOULD BE SLIGHT TO AVOID SLIPAGE. RAMP WITH HANDRAILS. SEE TITLE 24 OF CALIFORNIA CODE FOR ACCESSIBILITY REQUIREMENTS AND STANDARDS.
**Tree Planting**

1. **Central Leader**
   - Synthetic strapping, loop around central leader below first branch, one strap per stake, attach to stake via sheet metal screws.

2. **Woods**
   - Stakes, one per tree, set flush or side with tree.

3. **High Quality**
   - Synthetic strapping, loop around central leader below first branch, one strap per stake, attach to stake via sheet metal screws.

4. **Firming**
   - Synthetic strapping, loop around central leader below first branch, one strap per stake, attach to stake via sheet metal screws.

**Quotation**

- Quote one level, near the tops of 5' min, 30" min.

**Stakes**

- 3" min, 18" min, 5" min.

**Protection**

- 2" min, 3" min, 5" min.

**Wiring**

- 3" min, 30" min, 5" min.

**Strapping**

- Synthetic strapping, loop around central leader below first branch, one strap per stake, attach to stake via sheet metal screws.

**Strap**

- Synthetic strapping, loop around central leader below first branch, one strap per stake, attach to stake via sheet metal screws.

**Firming**

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**Garden Stakes**

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**Firming**

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**Installation & Design Considerations:**

Necessary component, allowing you to send discharge water back to the sewer system when needed. Sufficient pressure through a 1-inch irrigation line for 100-feet on flat ground. If the system is altered the existing plumbing and therefore does not require a permit. A three-way diverter valve is a no potable water connection. Able to redirect to sewer. Direct and contain graywater within mulch basins (irrigation or disposal field) below the ground. Graywater diverted to landscape shall not contain hazardous chemicals. Minimize contact with humans and animals. Divert water to the sewer if it contains diapers, oil, other chemicals. The distance may increase to 150-feet depending on slope. 

**Graywater Requirements to Comply with California Plumbing Code (CPC) Standards:**

- BE ABLE TO REDIRECT TO SEWER
- NO POTABLE WATER CONNECTION
- CONTAIN GRAYWATER ON SITE
- DIRECT AND CONTROL GRAYWATER WITHIN MULCH BASINS (IRRIGATION OR DISPOSAL FIELD) BELOW THE GROUND SURFACE
- NO JUMPING OR RUNOFF
- OUTLETS COVERED BY 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 DETERGENTS OR OTHER CHEMICALS
- GRAYWATER DIVERTED TO LANDSCAPE SHALL NOT CONTAIN HAZARDOUS CHEMICALS
- GRAYWATER IS RECEIVED BEST BY TREES, BUSHES, SHRUBS, SMALL PERENNIALS AND LARGER ANNUALS, BUT IS PROHIBITED ON LAWN, RAISED BEDS, ROOT AND LEAFY VEGETABLES. MODERATE WATER USERS SUCH AS FRUIT TREES ARE USUALLY ALLOTTED 100-200 GALLONS PER DAY AND ARE NOT RECOMMENDED FOR PLANTS THAT REQUIRE ACIDIC SOILS (pH < 6.5) SUCH AS BLUEBERRIES AND PHILODENDRON, SOIL TYPE WILL DETERMINE BOTH HOW QUICKLY GRAYWATER IS ABSORBED IN YOUR LANDSCAPE AND THE SIZE OF THE MULCH BASINS NEEDED TO INFILTRATE THE GRAYWATER.

**Additional Information:**

- DETERMINATION OF GRAYWATER PRODUCTION BASED ON TREES, BUSHES, SHRUBS, SMALL PERENNIALS AND LARGER ANNUALS, BUT IS PROHIBITED ON LAWN, RAISED BEDS, ROOT AND LEAFY VEGETABLES. MODERATE WATER USERS SUCH AS FRUIT TREES ARE USUALLY ALLOTTED 100-200 GALLONS PER DAY AND ARE NOT RECOMMENDED FOR PLANTS THAT REQUIRE ACIDIC SOILS (pH < 6.5) SUCH AS BLUEBERRIES AND PHILODENDRON, SOIL TYPE WILL DETERMINE BOTH HOW QUICKLY GRAYWATER IS ABSORBED IN YOUR LANDSCAPE AND THE SIZE OF THE MULCH BASINS NEEDED TO INFILTRATE THE GRAYWATER.

**Applicant Information:**

- ESTIMATE YOUR GRAYWATER SUPPLY USING THE CALCULATION PROCESS IN CALCULATIONS SECTION BELOW.
- COMPLETE CALCULATIONS TO DETERMINE THE MINIMUM REQUIRED MULCH BASIN SIZE PER YOUR SOIL TYPE.
- MEASURE ACTUAL IRRIGATION FIELD AREAS ON SITE AND DEVELOP NUMBER AND SIZE OF MULCH BASINS TO USE THIS VOLUME THAT FIT IN THE LANDSCAPE AREAS.
- REVIEW REQUIRED SETBACKS SHOWN IN CPC TABLE 1524 THIS SHEET.
- DEVELOP A SITE PLAN ILLUSTRATING THE FOLLOWING: REQUIRED SETBACKS, PROPOSED MULCH BASINS, VALUE LOCATIONS, PIPING DIAGRAM AND TREE AND PLANT LOCATIONS TO BENEFIT FROM GRAYWATER.
- IF PRODUCING DESIGN AND CONSTRUCTION PROCESS REVIEW PLAN AND SHEET OF LOCATION OF LAUNDRY NEAR GRAYWATER SUPPLIED LANDSCAPE AREA. CIVIL ENGINEER (FOR ANY POTENTIAL CONFLICTS WITH STORMWATER DRAINS) AND GENERAL & LANDSCAPE CONTRACTORS TO REVIEW THREE-WAY VALVE LOCATION AND SUPPLY PIPE LOCATION.

**Laundry to Landscape: Graywater System Example**

- **Laundry to landscape** systems are easily installed by the homeowner or a professional plumber. The washing machine is located on an external wall and is in close proximity to the landscape area being irrigated. Note that the washing machine volume will provide sufficient pressure through a 1-inch irrigation line for 100-feet on flat ground. If the system is designed to irrigate uphill from the washing machine, the distance should be reduced to 38-39 feet with no more than a 5% slope. If the system is designed to irrigate downslope from the washing machine, the distance may increase to 150-feet depending on slope.

**CPC Table 1502.4 -- Location of Grey Water System**

<table>
<thead>
<tr>
<th>Type of System</th>
<th>Distance to Plant</th>
<th>Distance to Street</th>
<th>Distance to Building</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressurized public water main</td>
<td>150 feet</td>
<td>50 feet</td>
<td>20 feet</td>
</tr>
<tr>
<td>On-site domestic water service line</td>
<td>150 feet</td>
<td>50 feet</td>
<td>20 feet</td>
</tr>
<tr>
<td>Sewage pits or cesspools</td>
<td>150 feet</td>
<td>50 feet</td>
<td>20 feet</td>
</tr>
</tbody>
</table>

**Pressurized public water main:**

- Plant factor (PF) = 0.3 (Low water use), 0.5 (Moderate water use)

**Weekly Water Needs Calculation**

\[ \text{Weekly Water Needs} = \left( \frac{0.62 \times \text{Area} \times \text{Eta} \times \text{PF}}{4 \text{ weeks}} \right) \]

**Laundry to Landscape Example**

1. **Estimate Daily Graywater Production**
   - Laundry: \( \text{Number of occupants} \times 15 \text{ gallons/day} \)
   - **Total Graywater Production:** \( \text{Total gallons/day} \)

2. **Calculate Graywater Utilization**
   - **Calgary Plumbing Code Estimate (Assign 2 occupants to master bedroom and 1 occupant to each additional bedroom)**
   - Laundry to Landscape: Graywater System Example

3. **Prove Graywater Absorption**
   - **Evaluating evapotranspiration rates, plant watering needs, and existing canopy.**

4. **Design and Construction**
   - **Reproduced with permission from the Santa Clara Valley Water District**
LANDSCAPE VIA MULCH BASIN OUTLETS. PLUMBING FOR GRAYWATER SOURCES MUST BE BRANCHED DRAIN SYSTEM OVERVIEW:

BRANCHED DRAIN GRAYWATER REQUIREMENTS TO COMPLY WITH CALIFORNIA PLUMBING CODE (CPC) STANDARDS:

1. NOTIFY ENFORCING AGENCY AND SECURE PERMIT FOR INTERIOR PLUMBING COMPONENTS
2. BE ABLE TO REDIRECT TO SEWER
3. NO POTABLE WATER CONNECTION
4. CONTAIN GRAYWATER ON SITE
5. DIRECT AND CONTAIN GRAYWATER WITHIN MULCH BASINS (IRRIGATION OR DISPOSAL FIELD)
6. BELOW THE GROUND SURFACE
7. NO PONDING OR RUNOFF
8. OUTLETS COVERED BY AT LEAST 2-INCHES OF MULCH, ROCK, OR A SHIELD (E.G. VALVE BOX LID)
9. MINIMIZE CONTACT WITH HUMANS AND ANIMALS
10. DIVERT WATER TO THE SEWER IF IT CONTAINS DIAPERS, OIL, OTHER CHEMICALS
11. GRAYWATER DIVERTED TO LANDSCAPE SHALL NOT CONTAIN HAZARDOUS CHEMICALS
12. NOTIFY ENFORCING AGENCY AND SECURE PERMIT FOR INTERIOR PLUMBING COMPONENTS
13. FOLLOW ALL APPLICABLE CODE OR LAWS
14. DIVERT WATER TO THE SEWER IF IT CONTAINS DIAPERS, OIL, OTHER CHEMICALS
15. GRAYWATER DIVERTED TO LANDSCAPE SHALL NOT CONTAIN HAZARDOUS CHEMICALS
16. FOLLOW ALL APPLICABLE CODE OR LAWS
17. POST OPERATION AND MAINTENANCE MANUAL
18. 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 FUMP. 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 INCH PER FOOT) TO ENSURE EVEN DISTRIBUTION.

PRESENTATION OF SYSTEM:
1. ESTIMATE YOUR GRAYWATER SUPPLY USING THE CALCULATION SECTION THIS SHEET.
2. ESTIMATE MULCH BASIN SIZES, AREAS AND VOLUME USING TABLE 3.
3. DEVELOP A GRAYWATER SITE PLAN SHOWING THE PERTINENT PLUMBING COMPONENTS TO BUILDING PERMIT APPLICATION:
4. SHOW ALL THE PLAN ELEMENTS LISTED IN #4-GRAYWATER PLAN BELOW.
5. REVIEW THE SAMPLE PLAN SHOWN IN DETAIL #1 THIS SHEET. SHOW TREE AND PLANT LOCATIONS TO BENEFIT FROM GREYWATER.
6. SUBMIT FOR BUILDING PERMIT EITHER WITH FULL SITE DRAWINGS OR AS A SEPARATE SUBMITTAL.
7. 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.

APPLICATION INFORMATION:
1. Estimate Daily Graywater Production
   - Calculate Graywater Volume (gallons) from the calculation section of this sheet.

   - Use the minimum mulch basin size for the design and specification of the basin area and volume.

3. Graywater Basin Size
   - Calculate the basin area and volume using the formulas provided in the table.

4. Graywater Basin Design
   - Select the appropriate basin size based on the calculated area and volume.

5. Graywater Basin Volume
   - Calculate the total volume of graywater to be diverted to the basin using the provided formula.

6. Graywater Basin Required Volume
   - Calculate the required volume of graywater to be diverted to the basin using the provided formula.

7. Graywater Basin Size
   - Select the appropriate basin size based on the calculated area and volume.

8. Graywater Basin Volume
   - Calculate the total volume of graywater to be diverted to the basin using the provided formula.

9. Graywater Basin Required Volume
   - Calculate the required volume of graywater to be diverted to the basin using the provided formula.

10. Graywater Basin Size
    - Select the appropriate basin size based on the calculated area and volume.

11. Graywater Basin Volume
    - Calculate the total volume of graywater to be diverted to the basin using the provided formula.

12. Graywater Basin Required Volume
    - Calculate the required volume of graywater to be diverted to the basin using the provided formula.

13. Graywater Basin Size
    - Select the appropriate basin size based on the calculated area and volume.

14. Graywater Basin Volume
    - Calculate the total volume of graywater to be diverted to the basin using the provided formula.

15. Graywater Basin Required Volume
    - Calculate the required volume of graywater to be diverted to the basin using the provided formula.

16. Graywater Basin Size
    - Select the appropriate basin size based on the calculated area and volume.

17. Graywater Basin Volume
    - Calculate the total volume of graywater to be diverted to the basin using the provided formula.

18. Graywater Basin Required Volume
    - Calculate the required volume of graywater to be diverted to the basin using the provided formula.

19. Graywater Basin Size
    - Select the appropriate basin size based on the calculated area and volume.

20. Graywater Basin Volume
    - Calculate the total volume of graywater to be diverted to the basin using the provided formula.

21. Graywater Basin Required Volume
    - Calculate the required volume of graywater to be diverted to the basin using the provided formula.

22. Graywater Basin Size
    - Select the appropriate basin size based on the calculated area and volume.

23. Graywater Basin Volume
    - Calculate the total volume of graywater to be diverted to the basin using the provided formula.

24. Graywater Basin Required Volume
    - Calculate the required volume of graywater to be diverted to the basin using the provided formula.

25. Graywater Basin Size
    - Select the appropriate basin size based on the calculated area and volume.

26. Graywater Basin Volume
    - Calculate the total volume of graywater to be diverted to the basin using the provided formula.

27. Graywater Basin Required Volume
    - Calculate the required volume of graywater to be diverted to the basin using the provided formula.

28. Graywater Basin Size
    - Select the appropriate basin size based on the calculated area and volume.

29. Graywater Basin Volume
    - Calculate the total volume of graywater to be diverted to the basin using the provided formula.

30. Graywater Basin Required Volume
    - Calculate the required volume of graywater to be diverted to the basin using the provided formula.
ALL OTHER RAINWATER CATCHMENT SYSTEMS MUST BE SUBMITTED FOR BUILDING PERMIT.

- WATER WILL BE USED FOR OUTDOOR NON-SPRAY IRRIGATION

- DOES NOT REQUIRE ELECTRICAL POWER OR MAKEUP WATER SUPPLY CONNECTION (SEE NOTE 2 AND 3)

- TANK IS SUPPORTED DIRECTLY UPON GRADE

- MAXIMUM STORAGE CAPACITY OF 5,000 GALLONS

2. PUMP AND PRESSURE TANK LIKELY REQUIRE INEXPENSIVE, OVER-THE-COUNTER, ELECTRICAL PERMIT.

1. A RAINWATER CATCHMENT SYSTEM MAY NOT REQUIRE A BUILDING PERMIT PROVIDED ALL OF THE FOLLOWING ARE MET (CALIFORNIA PLUMBING CODE 1601.3 (I):

- 1/2" = 1'-0"

RAINWATER HARVESTING DETAIL

SECTION VIEW RAIN GARDEN

- DASHED LINE ----­
- IS BOTTOM OF RAIN GARDEN RAINGARDEN
- 20X20 STAINLESS COBBLE TO HIDE PIPE INLET AND OUTLET

DRAINAGE LINE 36 INCHES BOTTOM OF RAINGARDEN

RAINWATER HARVESTING TANK

LEVEL PAD

GROUND

A. PREFERRED DRY CONVEYANCE IF TANKS ARE NEXT TO DOWNSPOUT
B. OVERFLOW: 3 IN. DRAINAGE PIPE; SLOPED 2 PERCENT FOR HORIZONTAL SECTIONS
C. 530 GALLON BUSHMAN SLIMLINE RAIN HARVESTING TANK OR EQUIVALENT
D. 6' 5 1/2" RAINWATER HARVESTING DETAIL
E. 4 INCHES COMPACTED BASEROCK WITH 2 INCHES OF PEA GRAVEL ON TOP
F. OVERFLOW TO RAINGARDEN (DRAINAGE)STAINLESS/STAINLESS/FLOAT BALL
G. 5 INCHES OF DECORATIVE GRAVEL WITH 2 INCHES OF PONDED WATER ABOVE
H. UNDISTURBED NATIVE SOIL
I. NORMAL DOWNSPOUT
J. FIRE SAFER LEAF GUARD
K. GUTTER

Rainwater Harvesting Tank

M. OPTIONAL BUSHMAN LEAF DIVERTER (WITH 20X20 SCREEN IF USING DRY CONVEYANCE) (REDUNDANT WITH LEAF GUARD ON GUTTERS)
N. 3 IN. PVC DRAINAGE TEE
O. 4 IN. TO 3 IN. PVC DRAINAGE REDUCER
P. BUSHMAN FIRST FLUSH FILTERS (TO KEEP EMITTER FROM CLOGGING)
Q. BUSHMAN FLOAT BALL
R. BUSHMAN FIRST FLUSH FILTER (TO PREVENT MERGER FROM CLOSING)
S. BUSHMAN DRIP Emitter TO DRAIN DIRT WATER BETWEEN STORAGE
T. "WET" CONVEYANCE 3 IN. DRAINAGE PIPE (WATER IS STAY IN PIPE BETWEEN STORAGE)
U. THREE SEPARATE 3/32 INCH HOLES TO DRAIN WATER FOR MOSQUITO CONTROL
V. CLEAN GRAVEL TO IMPROVE DRAINAGE FROM DRILLED HOLES

NOTES:

- A RAINWATER CATCHMENT SYSTEM MAY NOT REQUIRE A BUILDING PERMIT PROVIDED ALL OF THE FOLLOWING ARE MET (CALIFORNIA PLUMBING CODE 1601.3 (I):
- WATER WILL BE USED FOR OUTDOOR NON-SPRAY IRRIGATION
- MAXIMUM STORAGE CAPACITY OF 5,000 GALLONS
- TANK IS SUPPORTED DIRECTLY UPON GRADE
- DOES NOT REQUIRE ELECTRICAL POWER OR MAKEUP WATER SUPPLY CONNECTION (SEE NOTE 2 AND 3)

PROPERLY MAPPING SOLUTIONS

SHERWOOD DIGITAL MAPPING SOLUTIONS

EMBEDDING SAFELY ACCORDING TO APPLICABLE LAWS, LOCAL STATUTES, RULES, REGULATIONS, ORDINANCES AND CODES

PANORAMIC DESIGN GROUP

DESIGN ENGINEERS

SHEET TITLE: RAINWATER HARVESTING

DATE: MAY 18, 2018

RW-1.0 SHEET OF