Gray Water Tier 1 or Tier 2 Subsurface Irrigation System Design Worksheet

Determine daily graywater flow: _____gal/day

For single-family dwelling, use 160 gallons per day for 1 & 2 bedrooms, 240 gallons per day for 3 bedrooms, and 40 gallons per day for each additional bedroom (R317-401, Table 1). Daily graywater flow should be determined for maximum occupancy of house but must add at least one bedroom for unfinished basements.

Alternatively, determine flow using the fixtures in the residence: 30 gallons per day per bedroom for washing machine, 50 gallons per day per bedroom for shower/bathtub, and 5 gallons per day per bedroom for hand wash basin. Flow from other sources must be determined by a qualified designer.

Non-residential usage shall be sized by a certified designer and evaluated on a case-by-case basis by the regulatory authority.

Select surge tank volume,
if designing system as a Tier 2 system: _____gallons

A surge tank shall have a minimum of 250 gallons in volumetric capacity to provide settling of solids, accumulation of sludge and scum unless justified with a mass balance of inflow and outflow and type of distribution for graywater discharge.

Select distribution system type: _____system

Select from pipe and gravel **or** chambers.

A subsurface irrigation system shall be constructed in accordance with Table 6.

For pipe and gravel, aggregate shall be placed in the trench to the depth and grade required by Table 6. The aggregate shall then be covered with barrier material to prevent closure of voids with backfill.

Chamber systems shall be installed as per manufacturer's specifications. All chambers shall meet requirements listed in Rule R317-4.

Determine subsurface irrigation system area loading rate: _____gal/day/ft^2

From Table 4, select subsurface irrigation system area loading rate, which is dependent on the soil characteristics.

Determine minimum required absorption area: _____ft^2

Divide daily graywater flow in gallons per day by subsurface irrigation system area loading rate in gallons per day per square foot.

Dimensions of the absorption area:

Trench Design (From R317-401, Table 6)		
Trench Width	**Lineal Feet of Trench**	**Trench Spacing**
Number of Trenches	**Absorption Area Length**	**Absorption Area Width**

System Sketch