

Two permaculture tools; swales and rain gardens.

Both are used as aids to passively harvest rainwater and efficiently control its usage, or, simply, catch your rain water before it leaves your property and runs amok. Allowing rain runoff from your roof and gutters to stream down driveways and sidewalks means wasting a free valuable resource that, if collected, could provide water for your garden for several months. We have learned about these tools while suffering through recent regional droughts. Napa residents are now very informed about water conservation techniques, a result of the City-sponsored Cash for Grass program which offered cash incentives for front lawn removal, lawns being notoriously heavy water users. Replacing lawns allowed many residents to construct containment elements in their new landscaping. Which brings us to swales.

SWALES

A swale is loosely described as a depression carved across the across the contour of a given area with soil erosion and runoff issues, or, in landscaping, a depression or trench filled with sand or rock sloping slightly downward. Build your swale at a minimum of 8-10' from your building's foundation in order to begin collecting and channeling drainage flow. Begin by testing the drainage or percolation potential of your soil by digging a hole, examining the soil makeup and determining the percentage of clay present, as clay seals and does not readily drain. Fill the hole with water and monitor the time period required for complete drainage. Empty in 12 hours is ideal. Not empty in 36 hours indicates high clay content or an area requiring supplemental percolation aids such as sand or gravel.

Construction usually involves digging a trench, wider rather than deep, mounding removed soil along the side to form low berms. Once completed, a residential swale should be able to contain gutter and surface runoff. In residential areas, swales are frequently designed as rock

stream beds, as shown in these slides. The trench controls the water flow, the rocks provide aesthetic appeal and allow water to percolate , and the berms provide planting sites to incorporate into the broader design.

New residential construction, as a code requirement, requires construction of swales in each front yard,collecting and channeling runoff to an underground retention reservoir/chamber.

These swales were sparsely planted on the berms, and the entire area was covered with wood chips, to stabilize topsoil.

In agricultural applications swales are considered an effective way to plant new trees, planting on the berms, using the water collected below.

RAIN GARDENS

Frequently, garden design will incorporate swales that flow into a rain garden as an additional containment tool. By itself, a rain garden is a soil depression, usually with berms, dug deeper than a swale, and planted heavily with appropriate plantings, at three defined levels as indicated here, each offering different moisture levels.This knowledge will aid in identifying site specific plant materials.

CONCLUSION

Employing these tools will afford you better control and more efficient usage of your rainwater runoff.The internet provides an overwhelming number of variations of swale and rain garden designs.