

Before embarking on any new project please remember:

1. It is important to recognize that rainwater catchment systems require ongoing maintenance to remain effective, and to factor this maintenance into your plans. If you have already installed a catchment system, please review the maintenance sections of this brochure for tips on getting the most out of your existing features.
2. ALWAYS check with applicable regulatory agencies to determine if a permit is necessary for any project. Building a retaining wall, installing a large cistern, sending runoff to a creek or stream, and directing water to a neighboring property may all require a permit.
3. CALL BEFORE YOU DIG! Call 811 or 1-800-227-2600 for assistance from Underground Service Alert (USA).
4. Important Considerations for Properties with Septic Systems: In Napa County there are many homes served by onsite sewage disposal systems (aka septic systems). Not only do these systems have subsurface leach fields where the household sewage is treated and disposed of, but many also have subsurface drains (interceptor drains) associated with their design. It is imperative that any planned stormwater project be designed to not intercept subsurface sewage or interfere with the functioning of a septic system or interceptor drain. When you are in the stormwater project design phase, always check with your local jurisdiction first for the location of your septic system and leach field replacement area. If there are no records available, consult with a qualified individual to locate your system and its replacement area prior to design and installation of the project. Septic systems also have statutory setback requirements that you will need to consider in the planning process. The Napa County Department of Planning, Building and Environmental Services, listed below, is a good place to obtain information about your septic system and local regulations.



Rain barrels come in a variety of shapes, sizes, and colors.

Local Resources

- Napa County Resource Conservation District**, 707-252-4188, www.naparcd.org
- Napa Countywide Stormwater Pollution Prevention Program**, 707-253-4823, www.countyofnapa.org/stormwater
- City of Napa Water Division**, 707-257-9521, www.cityofnapa.org/water
- Napa County Public Works Water Conservation Program**, 707-259-5969, www.countyofnapa.org/waterconservation
- Napa County Department of Planning, Building and Environmental Services**, 707-253-4417, www.countyofnapa.org/PBES
- Napa County Mosquito Abatement District**, 707-553-9610, www.napamosquito.org
- Central Valley Builders Supply**, Napa, 707-257-8888, St. Helena, 707-963-3622, www.cvbsupply.com
- American Tank Co. Inc.**, Windsor, CA, 877-655-1100, www.watertanks.com
- Harmony Farm Supply**, Graton, CA, 707-823-9125, www.harmonyfarm.com

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Slow It, Spread It, Sink It Rainwater Catchment

Rainwater Collection Systems

Rain tanks and cisterns can be placed outside buildings to store water collected from roof downspouts. The stored water can then be used for irrigation. Collecting and storing water from roofs is an excellent way to SLOW water down by temporarily storing it. Captured water can be reused for irrigation or other non-potable options or metered off slowly after storm events to allow for infiltration and reduced flooding.

RAIN BARRELS are small- to medium-sized containers placed outside buildings and connected to roof downspouts to collect runoff for later use in non-potable applications. Rain barrels have many advantages in urban settings. They take up very little space, are inexpensive, and easy to install. Rain barrels conserve water and reduce the volume of runoff moving off-site.

MAINTENANCE: Rain barrels require regular draining after rainstorms and removal of leaves and debris collected on screens. Always check that the overflow is clear and directed to an appropriate location. Fine mesh screens should be used to seal lids and vents. A hole larger than 1/16 of an inch can allow mosquito access and result in significant larvae production.



Water from a rain barrel can be used for irrigation in place of potable water.



A local rainwater catchment system that utilizes old wine barrels.

DID YOU KNOW?

It takes only one inch of rain falling on a typical 1500-square-foot roof to generate approximately 1,000 gallons of runoff. Annual rainfall in Napa County ranges from 20–60 inches depending on where you live (residents at higher elevations generally receive higher amounts of rainfall). This means that in one winter, your roof alone could shed between 20,000 and 60,000 gallons of water as runoff!

Mosquito-Proofing For Rainbarrels

- Place a mosquito-proof screen (fine mesh - 1/16th of an inch) under the lid of each rain barrel making sure to cover the overflow hole.
- Keep your rain barrel lid and all connectors in the system sealed.
- If possible, place your barrel on a surface that will soak up or promptly drain water that has overflowed.
- Keep your barrel free of organic materials such as leaves and debris.
- Remove water that may have pooled on the top of the barrel at least 1 to 2 times a week during the spring or whenever mosquitos are active, or use a barrel with a self-draining lid.
- Use a downspout diverter to direct water into the barrel.
- Inspect the system on a regular basis to be sure there are no cracks or leaks and that all seals and fittings remain intact.
- Keep gutters and downspouts clean and free of debris.



DO

- Use water regularly. (e.g., water indoor plants)
- Use gravity to your advantage.
- Use multiple barrels where possible.
- Keep barrels sealed and maintained to eliminate debris accumulation and mosquito breeding.

DON'T

- Allow access for mosquitos, rodents, children, pets, or debris.
- Use for drinking.
- Capture water from roofs with excessive debris (e.g., leaves, pine needles, or bird droppings.)

Large Water Tanks/Cisterns

Large water tanks or cisterns are manufactured water storage containers for non-potable use in residential, commercial, agricultural, or industrial applications. Water tanks can be installed both above and below ground. Some tanks come as sectional pieces that can be put together to fit different space constraints. Tanks can be used with most guttered roofs to collect runoff and reduce runoff volume. Both water tanks and rain barrels can be used without pumping devices, instead relying on gravity flow. However, depending on the desired use for the water, a pump may be necessary for best performance.

Larger tanks can be designed to also function as privacy screens, fences, or small retaining walls. Tanks can also be hidden under decks or serve as the foundation for play structures or other landscape features. Get creative!

Underground tanks are excellent options for areas with limited space. However, do not install underground systems beneath the path of vehicles or heavy machinery traffic unless they have been engineered for that purpose. Extra precautions may be needed when placing tanks in locations with high water tables or saturated clay soils. Contact an experienced licensed professional for tank installations under these conditions.

Mosquito-Proofing For Tanks or Cisterns

- Cisterns (above and below ground) should be completely enclosed with no openings to the outside environment.
- Tightly seal cistern lids and connections.
- Cover all inlets, outlets, and vents with mosquito-proof screening (fine mesh -1/16 of an inch).
- Inspect the system on a regular basis to be sure there are no cracks or leaks and that all seals and fittings remain intact.
- The area surrounding cisterns should be designed to either divert or absorb excess water from overflow.
- The inside of the cistern must be accessible for periodic maintenance as well as inspection by mosquito control personnel.



A 20,000-gallon cistern at New Technology High School in Napa.

DID YOU KNOW?

Sediment and debris that collect in the corners and edges of gutters support the growth of bacteria, mosquitos and other organisms that could contaminate rainwater and spread disease. Because rounded gutter systems have fewer edges than their square-cornered counterparts, they provide cleaner water for rainwater catchment systems.

Basic components of a rainwater collection system:

- Catchment surface
~This is normally a roof, but there are other options.
- Gutters and downspouts
~Round gutters are recommended because they are less likely to collect sediment in corners and edges. Accumulated sediment can support bacteria growth.
- Screening of tanks or barrels and downspout openings
- First-flush device/Downspout Diverter
- Water tanks
~There are various options including manufacturing on-site.
- Water tank vent
- Overflow device
~This should be equal to or larger in diameter than the inflow pipe to avoid backup.
- Faucet and valve
- Filters and pumps (optional)



A rainwater catchment system can include multiple large tanks.

Maintenance:

- Remove accumulated sediment and debris annually and inspect all components such as gutters and downspouts regularly. The inside of the tank must also be inspected.
- Look for system leaks and cracks. Check all connections and hoses for wear and all screens or mesh for debris accumulation and holes.
- Make sure overflow is clear and directed to an appropriate location. Inspect all seams for leaks.
- Follow all manufacturers' recommended maintenance for any storage device.

DO

- Obtain necessary permits for concrete tanks and tanks over 500 gallons.
- Secure tanks with straps for protection from earth movement.
- Use gravity to your advantage wherever possible.
- Keep underground tanks a minimum of 1/4 full at all times to prevent collapsing of certain tank types.
- Place tank in an accessible location

DON'T

- Place tanks on steep hillsides.
- Place water tanks below ground unless they are approved for this use.
- Collect water from cedar or highly degraded roofs.
- Collect roof water from areas prone to large amounts of debris (leaf litter, etc.)
- Use or install older type cisterns with open tops or sides