

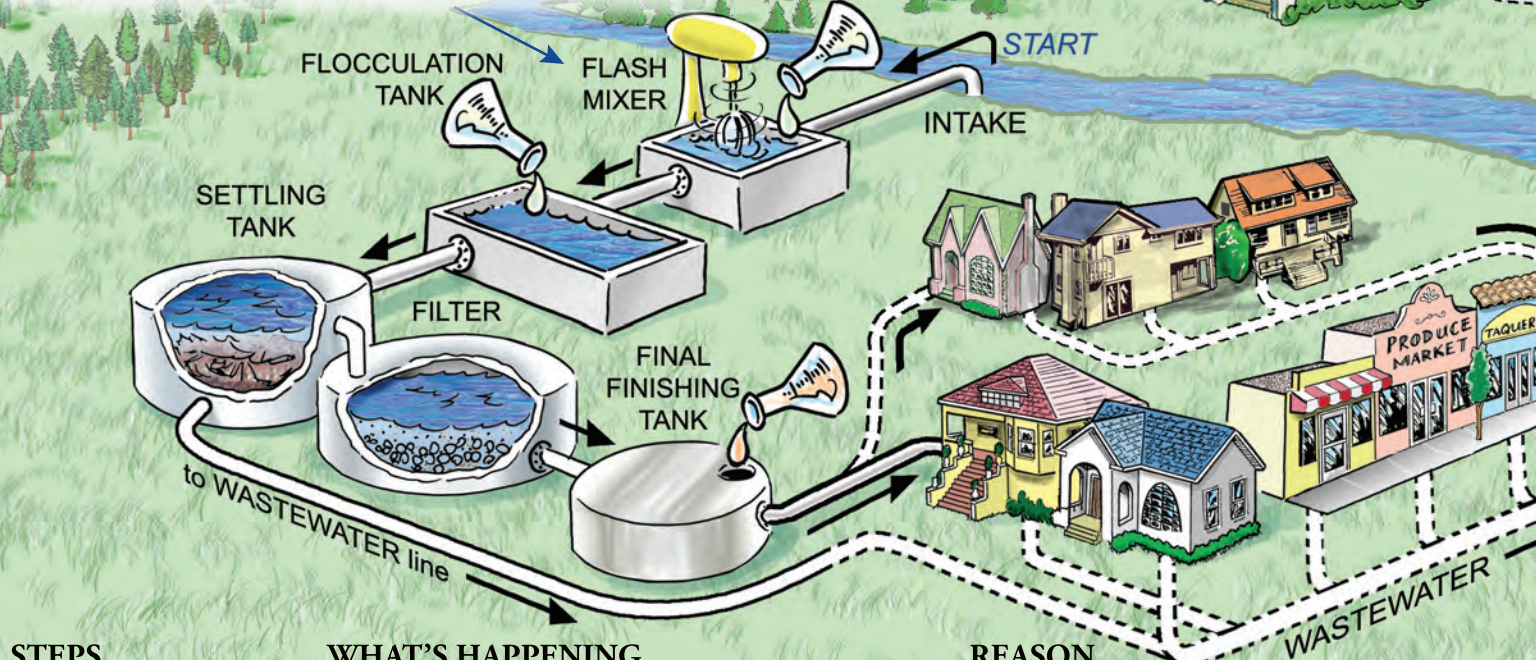
Would you drink water from the ground?

Yes, it's called groundwater. Most of the water used in Santa Cruz County comes from the ground. Water from wells could have been in the ground for a thousand years, or have arrived in last winter's storms. Water coming from wells is usually clean because it has been filtered naturally as it goes through the ground. Generally it only needs a little bit of chlorine added. Some well water also needs to be filtered with carbon and sand.

Would you drink from a river?

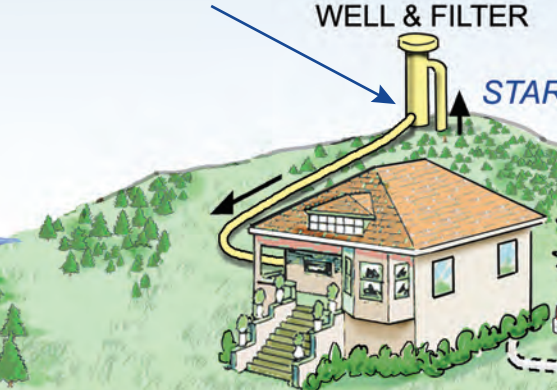
Yes, it's called surface water. First, you have to clean it. If you live in northern Santa Cruz County, you probably drink from the San Lorenzo River and the Loch Lomond reservoir every day. The water goes through a surface water treatment process to be cleaned before you use it.

This is an example of a SURFACE WATER TREATMENT PLANT



STEPS	WHAT'S HAPPENING	REASON
Flash Mixer	Chemicals are added and stirred into river or creek water.	These chemicals bond with and eliminate bacteria and bad odors and tastes.
Flocculation Tanks	Liquid alum is added. This alum forms tiny particles called floc.	The floc traps materials suspended in the water.
Settling Tanks	Floc particles stick together and form heavier particles, which settle to the bottom.	After the floc settles, it can be removed from the water. This helps to clear up the water.
Filter	Water is run through layers of anthracite coal, sand, and gravel.	This removes any remaining particles.
Final Finishing Tank	Chlorine and phosphate is added.	Chlorine kills any harmful bacteria. Phosphate prevents pipes from corroding.

This is an example of GROUNDWATER TREATMENT WELL & FILTER

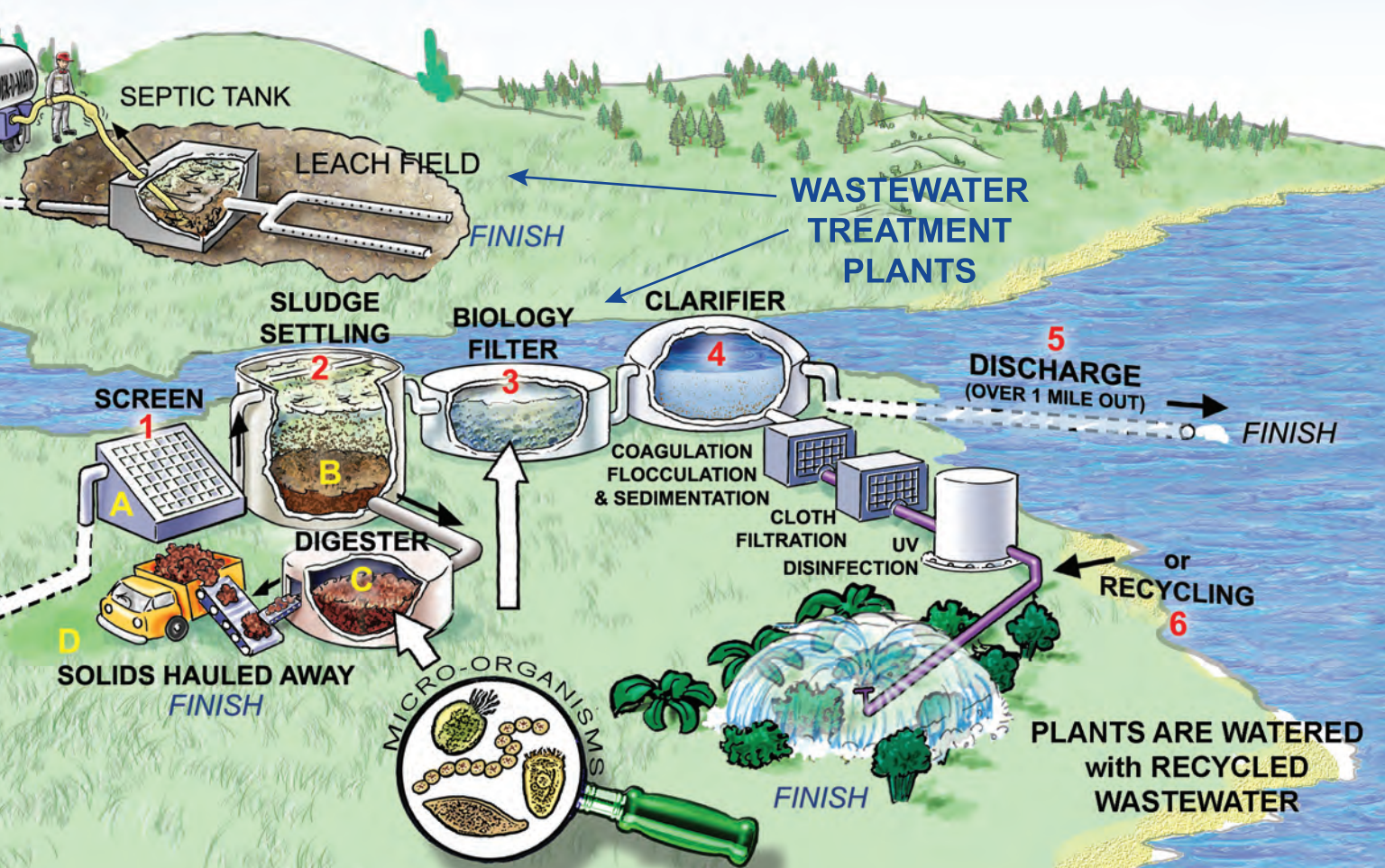


Wastewater Treatment Plants

We take showers, flush toilets, wash our hands, boil noodles, scrub dishes, mop floors and do the laundry. By the end of the day a lot of water has gone down the drain. The used water is now called wastewater and has to be cleaned. In rural areas, wastewater is treated in septic systems. City or suburban wastewater goes to a wastewater treatment plant. Wastewater is treated in Watsonville, Santa Cruz, Scotts Valley and Davenport. Davenport uses sewage lagoons to treat their wastewater.

Septic Systems: Mini-Water Treatment Plants

In septic systems, micro-organisms eat the harmful bacteria in wastewater. The water is filtered through gravel and soil and returned back to the ground and eventually to streams or aquifers. When septic tanks get full, the sludge is pumped out and taken to the big wastewater treatment plant.



Label the names of the steps in treating and cleaning wastewater.

SOLIDS	LIQUIDS
A. _____	1. _____ Large materials are removed.
B. _____	2. _____ Sludge is the heavy stuff that settles to the bottom of the tank. It is removed and sent to the Digester.
C. _____	3. _____ Wastewater is cleaned by micro-organisms.
D. _____	4. _____ Final settling of solids.
	5. _____ Treated wastewater is sent over 1 mile out to sea.
	6. _____ Treated wastewater is recycled for irrigation.