Water from sand
About 80 percent of our drinking water comes from a sand and gravel formation often referred to as the "primary aquifer." It’s identified on geologic maps as the "Qva" unit. The ease by which water moves through these sand and gravels is highly variable and depends upon the size of the particles.

Water moves
Water can move through glacial sands and gravels 10–100,000 times faster than it can through silts and clays and can move through glacial sands and gravels 10–100,000 times faster than it can through silts and clays.

Till: Our dense overcoat
Much of the Island is covered by a protective overcoat called glacial till. It’s material that is laid down in front of a glacier and then is overridden and compacted by the glacier. It’s also called "hardpan" and invariably frustrates local gardeners when they try to dig.

What’s an aquifer?
Geologic formations which hold and let water move easily are called "aquifers." A mixture of sand and gravel makes a good aquifer. The amount and rate at which you can withdraw water depends on the specific characteristics of the aquifer at the well site.

Gravel, sand, silt and clay
Below the primary aquifer are clay and silt formations. Although clay does a good job of holding water, it won’t give it up easily and forms a barrier that slows the downward progress of water. Some water does eventually make its way through clay to other sand and gravel formations often called "deep aquifers."

What’s an aquitard?
Geologic layers that impede the movement of water are called “aquitards.” Silt and clay, which are made up of small particles, are aquitards because water can’t always saturate with water. (Qva, Qsp, Qst, Qstq)

Deep aquifers
Less is known about these aquifers because fewer deep wells have been drilled on the Island.

The map below shows the surface geology of our Island. The different colors represent different geologic layers. You can see how the layers stack up by looking at the cross section view. It represents what we might see if someone took a chain-saw and cut through part of the Island. Take a look at the key to help you understand the Island’s inners and how geology affects water.

Want to know more?
To learn more about the Island’s geologic characteristics, see Chapter 4 of the Vashon-Maury Island Rapid Rural Reassessment Report, and check out the geologic map created by Derek Booth and Kathy Troost.

Vashon from mid-Island to the tip of the Burton Peninsula. Take a look at a slice of layer cake. A-A’ depicts a slice of Vashon from mid-island to the tip of the Burton Peninsula. Notice how the thicknesses of the different layers change and how some layers are discontinuous.

A slice of geologic cake
Above, you will find a cross section of the Island. It’s like taking a look at a slice of cake. A-A’ depicts a slice of Vashon from mid-island to the tip of the Burton Peninsula. Notice how the thicknesses of the different layers change and how some layers are discontinuous.