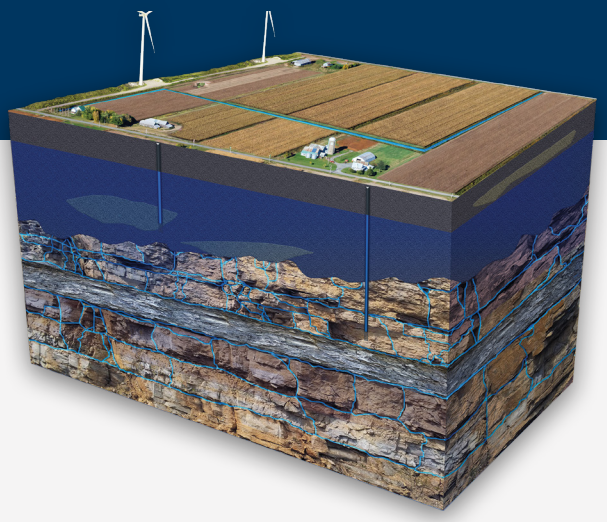
How groundwater moves in southeast Minnesota: **Till landscape**



The flow of groundwater in southeast Minnesota is fascinating and complex and because of the unique geology, it is like no other area in the state. The till landscape is one of three distinct geologic landscapes in this region. It is in the western region of the Root River Watershed and throughout portions of southeast Minnesota. Listed below are six key points to consider when thinking about water movement in the till landscape.

See page 2 for a larger image

WHERE THE ROOT RIVER BEGINS: This flat agricultural area in eastern Mower County is called the glacial till landscape. This is where the Root River begins its 80-mile course to the Mississippi River.

DRAINAGE TILE: A network of sub-surface pipes, called drainage tile, are placed four to five feet below the ground so crops can be grown. This tile directs about 20-30% of the annual precipitation to drainage ditches and streams. A small amount of precipitation slowly travels to deeper groundwater or runs off the surface, while most is evaporated and used by plants.

THICK GLACIAL TILL: Till is a dense mixture of clay to boulder size material that was laid down directly by glacial ice. Up to 200 feet of till covers the underlying bedrock. The thickness and amount of clay within this till affects the movement of groundwater.

CLAY-RICH SEDIMENT: The dense blanket of compacted clay acts like a barrier and slows the downward movement of groundwater.

SPEED OF FLOW VARIES: In isolated areas, buried sand and gravel channels left by glacial streams are located in layers of till. In these locations, water flows faster into the underlying aquifers and younger water can mix with older water.

WHAT DECADE ARE YOU DRINKING? Younger water is often from aquifers located above shale layers and can be years to decades old. Older water is typically contained deeper in the glacial till and bedrock layers and can be decades to centuries old. In many cases, drinking water is a mixture of both younger and older water.

Root River Field to Stream Partnership

Minnesota Department of Agriculture
Minnesota Agricultural Water Resource Center
The Nature Conservancy
Mower SWCD
Fillmore SWCD
Root River SWCD

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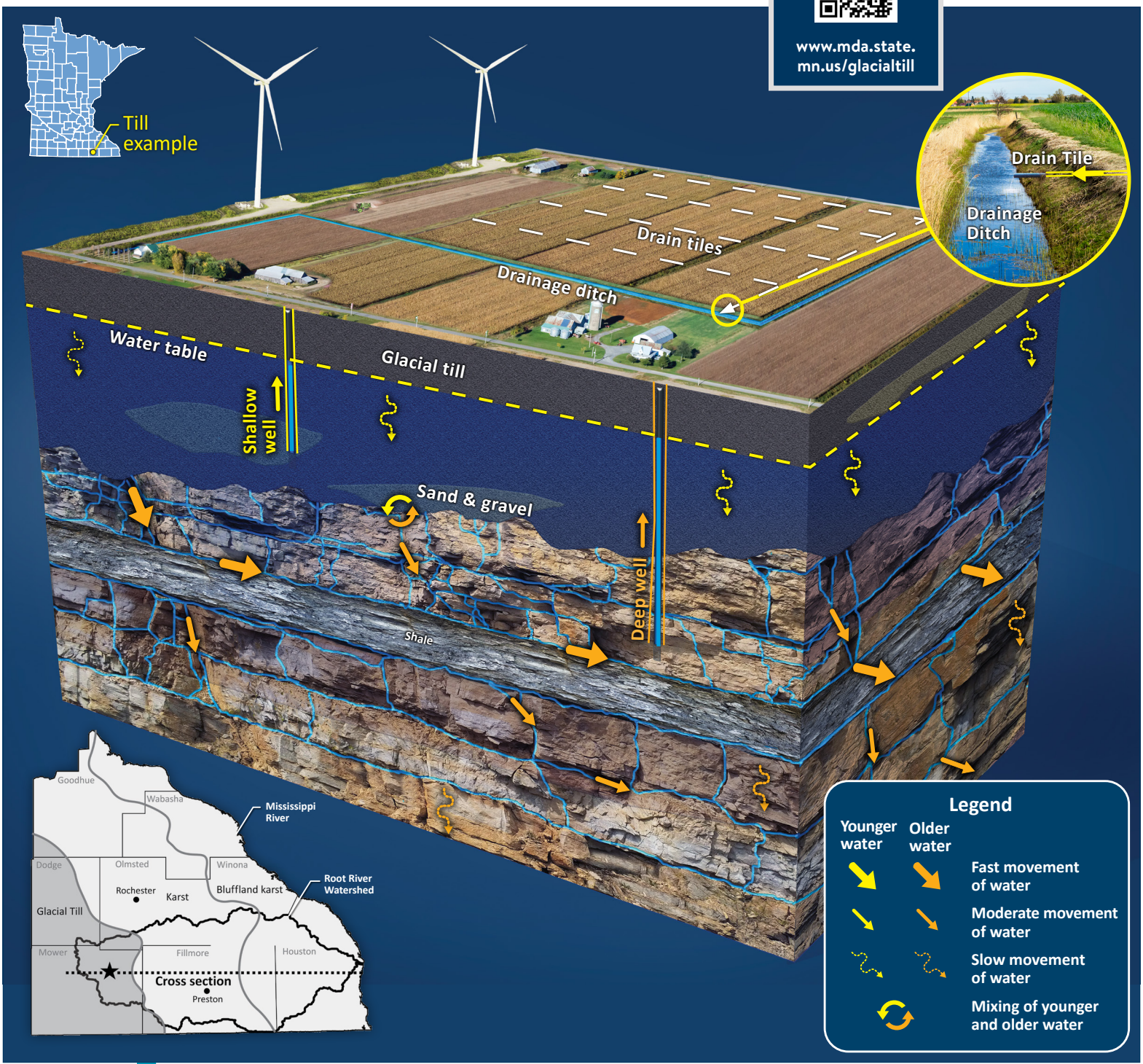

Till landscape example location

Bedrock cross section