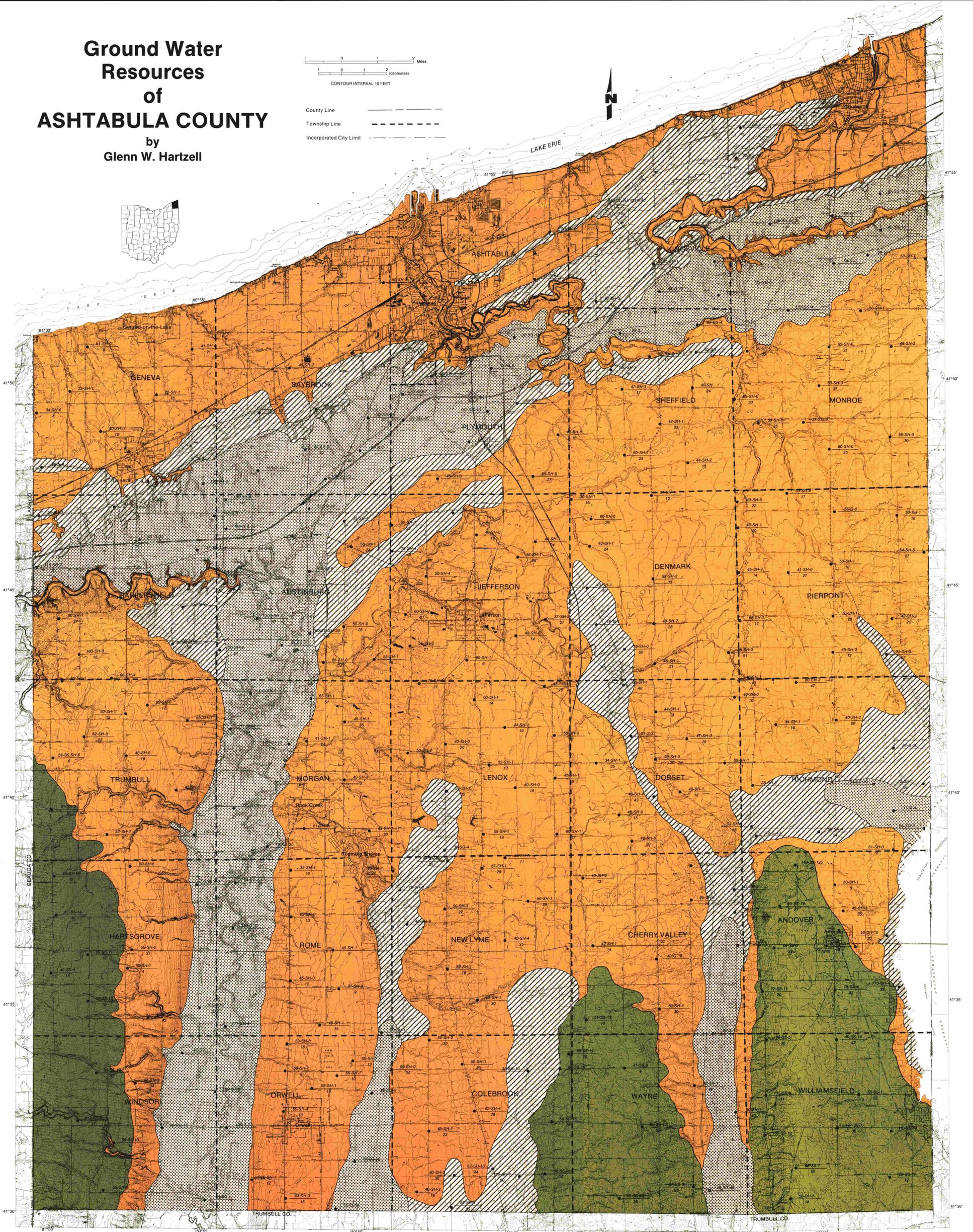
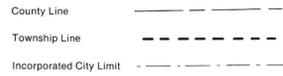
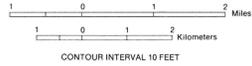
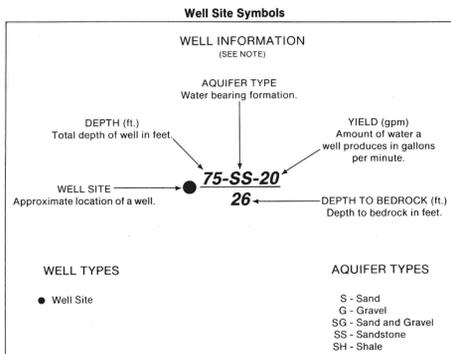


Ground Water Resources of ASHTABULA COUNTY

by Glenn W. Hartzell



- Well Yields**
- AREAS IN WHICH YIELDS OF LESS THAN 25 GALLONS PER MINUTE CAN BE DEVELOPED**
- Mississippian sandstone and sandy shale yield 5 to 15 gpm. Wells drilled in the southern part of the county at higher elevations may yield as much as 15 to 20 gpm at depths up to 150 feet while wells drilled in the fringe areas are less than 90 feet deep and yield 5 gpm.
- AREAS IN WHICH YIELDS OF 3 TO 10 GALLONS PER MINUTE CAN BE DEVELOPED**
- Unconsolidated deposits less than 50 feet thick, primarily clay and sandy clay with some interbedded thin lenses of sand and gravel overlying shale. Domestic wells in sand and gravel may yield 5 to 10 gpm while wells drilled through clay into the shale yield less than 2 gpm. Screened and/or gravel-packed wells in some isolated thicker sand and gravel deposits may yield up to 25 gpm.
 - Unconsolidated deposits from 50 to 200 feet thick, primarily clay and sandy clay with interbedded thin lenses of sand and gravel overlying shale. Domestic wells in sand and gravel may yield 5 to 10 gpm while wells drilled through clay into the shale yield little or no water. Screened wells in thicker sand and gravel deposits, especially in the northern half of the county, may yield up to 30 gpm.
- AREAS WHICH YIELD LESS THAN 3 GALLONS PER MINUTE**
- Clay and sandy clay, less than 30 feet thick, overlying shale. Yields of less than 3 gpm available from the upper few feet of weathered shale. Many wells are dry. Salt water may be encountered as shallow as 50 feet into the shale. Poor area for developing even minimal domestic supplies. Dug wells and cisterns are common.



The availability of ground water is controlled by the type of rocks which make up the earth's surface. The quantity of water that the rocks will yield is determined by the size, shape, and number of small openings between individual grains. Two major types of water-bearing formations are found in Ashtabula County - (1) consolidated layers of sandstone and shale, and (2) unconsolidated deposits of gravel, sand, silt, and clay. Shale is a very dense, fine grained rock and a poor source of water. Sandstone, with larger grains and more openings may yield good supplies. Likewise, sand and gravel yield good supplies while the finer grained silt and clay yield very little water.

Mississippian sandstone is encountered primarily in the southern part of the county and yields adequate supplies for domestic use. Unconsolidated deposits cover the entire county and range in thickness from a few feet to over 200 feet. The thicker deposits offer a better opportunity to obtain adequate supplies, particularly the beach ridge areas in the north central part of the county.

Remarks

Bedrock wells are usually cased a few feet into the top of the rock, then drilled "open hole" to allow water to enter the well through the rock wall. A well drilled in unconsolidated material must be cased to the bottom to keep the hole from collapsing. The end of the casing rests in the gravel formation and, as the well is pumped, water flows through the gravel into the well. Material such as silt or fine sand, if present in the formation, can be drawn into the well. Well screens and gravel packs can be used in a sandy or silty formation to prevent fine material from entering the well and to increase the yield.

Low yielding wells may not provide enough water for peak-use demands. These can be pumped overnight into storage tanks thereby providing an adequate supply for the next day.

Note

The ground-water characteristics have been mapped regionally, based upon interpretations of water well records and the area's geology and hydrology. Well sites mapped were selected as typical for the areas shown. Information regarding specific sites may be obtained from the Division of Water.