The lacustrine confining unit in the Waverly-Sayre area ranges in thickness from zero near the southern limit of glaciation, just beyond Wilkes-Barre, Pa., to several feet in the northern part of the study area. This lacustrine unit is composed of fine-grained sediments deposited in the glacial lakes that filled the Susquehanna River valley from Milan southward to at least Towanda, Pa., approximately 10 miles south of the Pennsylvania border. These areas are occupied by glaciofluvial ice-contact deposits whose deposition preceded that of the fine-grained sediments into the lake. As a result, the lacustrine unit generally abuts or overlaps the ice-contact sediments in these areas but may interfinger with them.

The confined sand and gravel aquifer is overlain by a thick sequence of fine-grained lacustrine sediments. In some areas, the lacustrine sediments are not continuous and consist of lodgment till and washed (reworked) till that also typically overlie bedrock at depth in major valleys. Sand and gravel valley-fill aquifers that are overlain and confined by thick sequences of fine-grained sediments are fairly common in upstate New York and northern Pennsylvania. Productive confined sand and gravel aquifers have been documented in nearby Owego (Reynolds and Garry, 1990), in many other valleys of the Susquehanna River basin (MacNish and Randall, 1982), and underlying the glaciofluvial terraces in Rensselaer County (Reynolds, 1999). The confined aquifer provides adequate domestic water yield in the Pennsylvania side of the study area (Bradford County) is 21.6 gal/min, and that the average yield for 28 six-inch-diameter domestic wells completed in the confined aquifer in the Pennsylvania side of the study area is 1.1 gal/min. Two-inch-diameter reference wells indicate that the average yield for 28 six-inch-diameter domestic wells completed in the confined aquifer in the New York side of the study area is 1.2 gal/min. Well data compiled by Werkheiser (1987) are reported to be adequate for most domestic users. Well data compiled by Werkheiser (1987) are reported to be adequate for most domestic users.

The lacustrine unit is exposed at land surface in areas where the lacustrine deposits are not overlain by other sediments. The lacustrine unit consists of ice-contact sand and gravel. The confined aquifer provides adequate domestic water yield in the Pennsylvania side of the study area (Bradford County) is 21.6 gal/min, and that the average yield for 28 six-inch-diameter domestic wells completed in the confined aquifer in the Pennsylvania side of the study area is 1.1 gal/min. Two-inch-diameter reference wells indicate that the average yield for 28 six-inch-diameter domestic wells completed in the confined aquifer in the New York side of the study area is 1.2 gal/min. Well data compiled by Werkheiser (1987) are reported to be adequate for most domestic users. Well data compiled by Werkheiser (1987) are reported to be adequate for most domestic users.