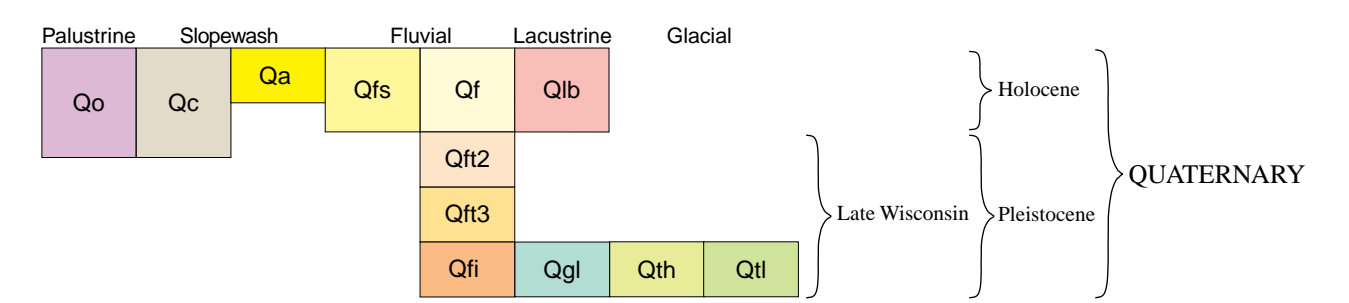


**CORRELATION OF MAP UNITS**



**DESCRIPTION OF MAP UNITS**

The map emphasizes the origin of surficial materials in the area of the Victoria 7.5-minute quadrangle. It was constructed in part using aerial photographs taken in 1968 and 1977 (1:80,000 scale) and 1991 (1:40,000 scale); and U.S. Soil Conservation Service soil-survey maps for Carver County (Edwards, 1968).  
 Field work was conducted during the summer of 1997 and the spring of 1998. Most exposures consisted of excavations, including construction sites, road cuts, and gravel pits. Surface samples were supplemented with soil borings drilled to a depth of about 20 feet (6 meters).

**PALUSTRINE DEPOSITS**

**Qo Organic deposits (Holocene)**—Palustrine sediments consisting of dark-brown to black, drained and undrained peat and muck.

**SLOPEWASH DEPOSITS**

**Qc Colluvial deposits (Holocene)**—Reworked sediments consisting of a mixture of sand, silt, clay, and pebbles; resembles till and sand and gravel from which it is derived; may contain disseminated organic debris. Unit includes the till that forms steep bluffs, sediment that accumulates at the base of steep slopes, and sediment that is deposited along small streams in deep gullies.

**Qa Alluvial fan deposits (Holocene)**

—Slopewash sediments consisting of loam to loamy fine sand; beds of silt loam to silty clay loam, fine sand, and gravel; disseminated organic debris. Deposited in floodplain at the base of steep slopes and at the mouths of deep gullies.

**FLUVIAL DEPOSITS**

**Qf Alluvium of the Minnesota River (Holocene)**—River-channel, overbank, and slackwater sediments consisting of dark-brown to gray silt loam to silty clay loam; layers of fine sand and gravel. Organic debris is both disseminated in the sediments and forms discrete peat beds in places.

**Qfs Alluvium of creeks and streams (Holocene)**—Creek-channel, overbank, and slackwater sediments consisting of dark-grayish-brown to olive-yellow sandy clay loam to sandy loam; layers of fine sand and gravel. May contain organic debris, both disseminated in the sediments and in discrete peat beds in places. Deposited along Carver Creek in the southern part of the mapped area. Carver Creek flows on a relatively wide floodplain that is aggrading to the rising base level of the Minnesota River.

**Qti2 Alluvium of terrace 2 (Holocene)**—Sandy loam to loamy sand; contains about 10 percent gravel at the surface (as much as 35 percent at depth); very coarse sand fraction contains less than one percent shale. Terrace elevation about 810 feet—110 feet (34 meters) above present floodplain.

**Qti3 Alluvium of terrace 3 (Holocene)**—Sandy loam to sand; contains about 10 percent gravel at the surface (as much as 20 percent at depth); very coarse sand fraction contains less than 10 percent shale. Terrace elevation about 850 feet—150 feet (46 meters) above present floodplain.

**Qli Lacustrine deposits (Holocene)**—Mixed sediments, the overall texture of which is predominantly loam to loamy sand; consists of layers of sorted sediments (silt, sand, and gravel) and unsorted sediments (till, cobbles, boulders); very coarse sand fraction contains as much as 74 percent shale; collapsed, hummocky topography. Deposited by meltwater streams beneath or on top of ice. Mined in places for sand and gravel or construction fill.

**LACUSTRINE DEPOSITS**

**Qlb Lake beach sediment (Holocene)**—Wave-washed sediments consisting predominantly of fine- to coarse-grained sand; derived from underlying till and ice-contact deposits; may be overlain by organic deposits. Width of exposure varies depending on water level in lake.

**Qgl Glacial lake deposits (Pleistocene)**—Lacustrine sediment consisting of generally homogeneous silt loam to clay loam; interbedded in places with thin layers of fine sand and pebbles; patchy distribution on broad plateaus; variable thickness (3–17 feet or 1–5 meters).

**GLACIAL DEPOSITS**

**Till (Pleistocene)**—Unsorted sediment consisting of abundant pebbles, common cobbles, and rare boulders in a matrix of loam to clay loam; pockets of silt, sand, and gravel in places. Average composition of the very coarse sand fraction includes crystalline rocks (41 ± 5 percent), carbonate rocks (27 ± 3 percent), and shale fragments (33 ± 6 percent). Units are distinguished on the basis of geomorphic expression.

**Qth High-relief deposits**—Till as above; hummocky; overall relief about 60–100 feet (18–30 meters); many collapsed channels. Deposited on top of stagnant ice and redistributed as the ice melted.

**Qtl Low-relief deposits**—Till as above; level to rolling surface topography; overall relief about 10–20 feet (3–6 meters); cut by steep gullies as deep as 150 feet (46 meters); underlain in places by sand and gravel. Sand and gravel is interpreted to be valley-fill deposits. The presence of the sand and gravel under the till is believed to be related to the subdued surface topography.

**DESCRIPTION OF MAP SYMBOLS**

**Contact**—Established from aerial photographs, geomorphology, soil maps, and examination of surficial material.

**Scarp**—Ticks point down scarp; dashed where discontinuous or obscure. Marks former channel or ice-contact position.

**Sand and gravel pit**—Active; inactive. Where applicable, areal extent indicated by outline.

**Plateau**—Broad, relatively level area in a zone of hummocky topography. Plateaus range from 40 to over 640 acres (161–2590 square kilometers) and have low relief (10–20 feet or 3–6 meters). Predominantly till; capped in places by 3–17 feet (1–5 meters) of lake sediment. The plateaus are interpreted to represent saturated debris that was deposited in lows on stagnant ice; the deposits now stand as topographic highs on the landscape. Sorted sediment in center of plateau was deposited in standing water.

**Soil boring**—Auger depths, 3–26 feet (1–8 meters).

**Sample location**—Includes outcrops and artificial exposures (construction sites and gravel pits).

**Record of water-well construction**—Location of a water well for which there is a log prepared by a well driller. The information on the log is interpreted by a geologist and the location of the well verified. There are 650 well records for the Victoria quadrangle.

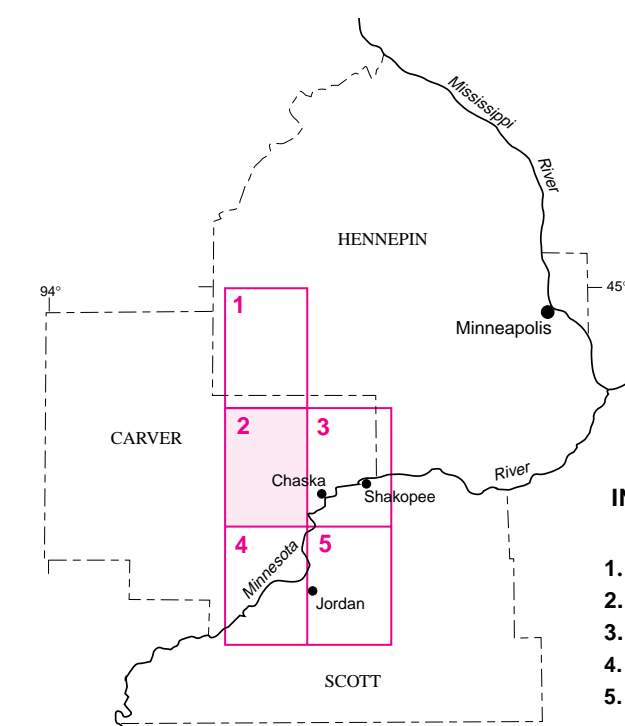
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 The views and conclusions contained in this document are those of the author and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the U.S. Government. This manuscript is submitted for publication with the understanding that the United States Government is authorized to produce and distribute reprints for governmental use. Supported by the U.S. Geological Survey, Department of the Interior, under award no. 1434-HQ-97-AG-01803.

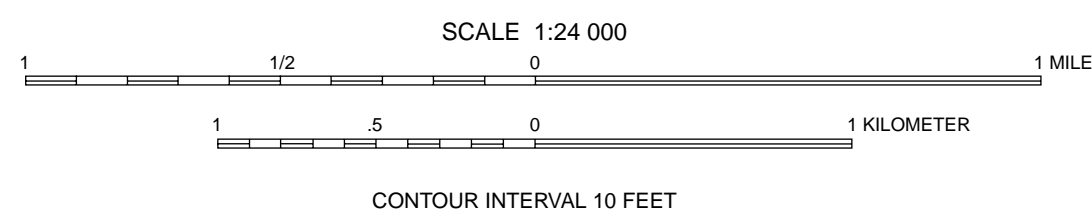
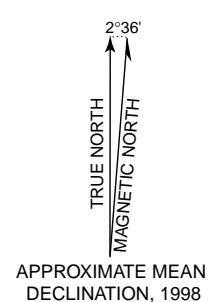
Every reasonable effort has been made to ensure the accuracy of the factual data on which this map interpretation is based, however, the Minnesota Geological Survey does not warrant or guarantee that there are no errors. Users may wish to verify critical information; sources include both the references listed here and information on file at the offices of the Minnesota Geological Survey in St. Paul. In addition, effort has been made to ensure that the interpretation conforms to sound geologic and cartographic principles. No claim is made that the interpretation shown is rigorously correct, however, and it should not be used to guide engineering-scale decisions without site-specific verification.



**INDEX TO STATEMAP QUADRANGLES**

1. Mound (in progress)
2. Victoria (M-88)
3. Shakopee (M-87)
4. Jordan West (in progress)
5. Jordan East (M-89)

Base modified from U.S. Geological Survey, 1958; revised 1993  
 Lambert conformal conic  
 1927 North American Datum (NAD 17)



GIS compilation and cartography by Joyce Meints and Phil Heywood

**SURFICIAL GEOLOGIC MAP OF THE VICTORIA QUADRANGLE, CARVER COUNTY, MINNESOTA**

By  
 Barbara A. Lusardi  
 1998