

DESCRIPTION OF MAP UNITS

The map emphasizes the origin of surficial materials in the area of the Shakopee 7.5-minute quadrangle. It was constructed in part using aerial photographs taken in 1963 and 1964 (1:20,000 scale), 1968 and 1977 (1:80,000 scale), 1991 (1:40,000 scale); and U.S. Soil Conservation Service soil-survey maps for Carver (Edwards, 1968), Hennepin (Lueth, 1974), and Scott (Harms, 1955) Counties.

Mapping was conducted during the summer of 1996. Most exposures consisted of man-made excavations, including construction sites, road and railroad 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. Commonly found in depressions between hills, in collapsed channels, and in the floodplain. In the floodplain this unit consists partly of overbank and slackwater sediments. Where mapped on alluvial fans (secs. 34 and 35, T. 116 N., R. 23 W.), this unit includes material deposited in a calcareous seepage fen.

SLOPEWASH DEPOSITS

Qc Colluvial deposits (Holocene)—Reworked sediments consisting of a friable mixture of sand, silt, clay, and pebbles; resembles till and buried 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 alluvial sediment that is deposited along small streams.

FLUVIAL DEPOSITS

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.

Qf Floodplain alluvium (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. Amount of sand and gravel increases adjacent to river channel and in areas of channel migration (scroll bars).

Alluvial terrace deposits—Sediments of Glacial River Warren preserved as terraces above the floodplain of the modern Minnesota River. Upper terrace cut into glacial sediments (sand and gravel, and till). Lower terraces cut into glacial sediments and bedrock.

Qth1 Alluvium of terrace 1 (Holocene and Pleistocene)—Variable thickness of predominantly medium to coarse sand. Terrace elevation about 750 feet, 50 feet (15 meters) above present floodplain.

Qth2 Alluvium of terrace 2 (Pleistocene)—Loam to sandy loam; fine grained in shallow channels; very coarse sand fraction contains less than one percent shale; proportion of gravel increases with depth. Terrace elevation about 810 feet, 110 feet (34 meters) above present floodplain.

Qth3 Alluvium of terrace 3 (Pleistocene)—Silty loam to sandy loam (fine grained in shallow channels) grading into loamy sand; very coarse sand fraction contains 1–2 percent shale; proportion of gravel increases with depth. Terrace elevation about 850 feet, 150 feet (46 meters) above present floodplain.

Qti Ice contact deposits (Pleistocene)—Variable thickness of sandy loam to loamy sand and silty clay loam; very coarse sand fraction contains as much as 26 percent shale (average, 12 percent); collapsed, hummocky topography. Deposited by meltwater streams on top of ice. Mined in the past for sand and gravel.

GLACIAL DEPOSITS

[Sediment deposited by the northwest-source Des Moines lobe. Deposits contain abundant shale fragments. Color of till is variable but is typically yellow-brown to gray-brown where oxidized.]

Till (Pleistocene)—Loam to clay loam; pebbly; pockets of silt, sand, and gravel in places. Average composition of the very coarse sand fraction includes crystalline rocks (45 percent), carbonate rocks (26 percent), and shale fragments (30 percent). Units are distinguished on the basis of geomorphic expression.

Qth High-relief deposits—Till as above; forms poorly developed circular flat-topped hills; hummocky; overall relief about 100 feet (30 meters); many collapsed channels.

Qtl Low-relief deposits—Till as above; level to rolling surface topography; overall relief about 10 feet (3 meters); steep gullies are as deep as 180 feet (55 meters); underlain in many places by thick deposits of sand and gravel.

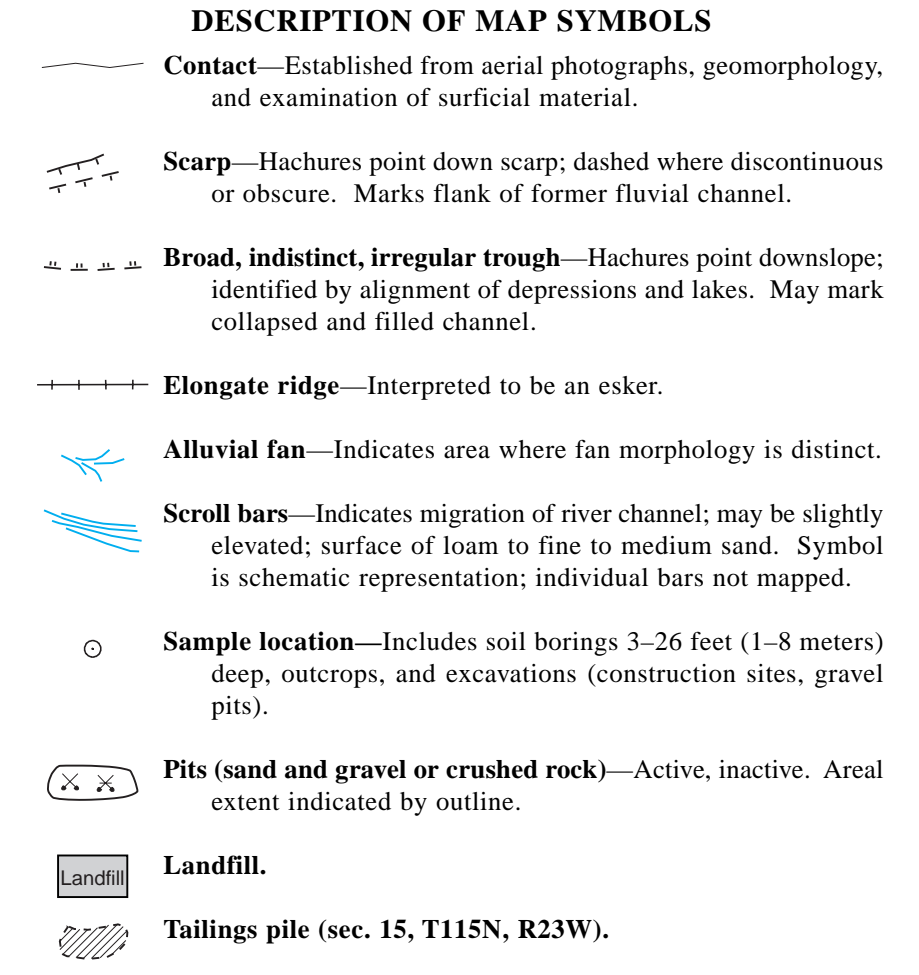
Qts Sandy till (Pleistocene)—Loam to sandy loam; pebbly; pockets of silt, sand, and gravel in places. Average composition of the very coarse sand fraction includes crystalline rocks (64 percent), carbonate rocks (26 percent), and shale fragments (10 percent). Unit is covered in places by a discontinuous veneer of sand and gravel. Forms prominent ridge.

Qtsl Collapsed, high-relief deposits—Till as above; forms islandlike highlands 50–70 feet (15–20 meters) above low-relief, hummocky terrain; covered in places with a discontinuous veneer of silt loam.

Qtsl Collapsed, low-relief deposits—Till as above; collapsed, hummocky; relatively low relief (20–30 feet or 6–9 meters); covered in places with a discontinuous veneer of sand and gravel.

SEDIMENTARY ROCKS

Opc Prairie du Chien Group (Ordovician)—Tan to red sandy dolostone. Mapped in outcrop and within 10 feet (3 meters) of surface.



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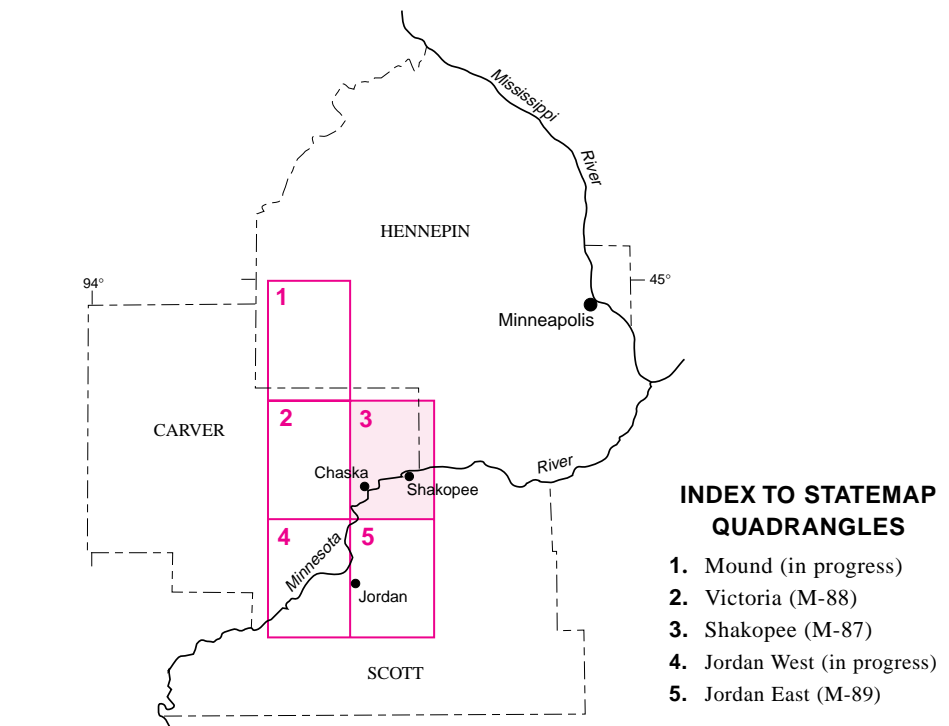
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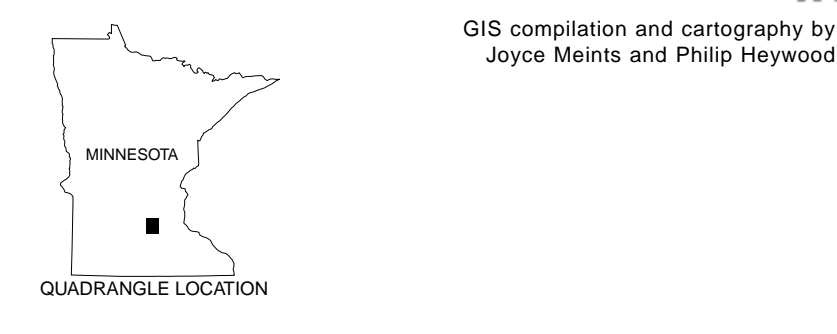
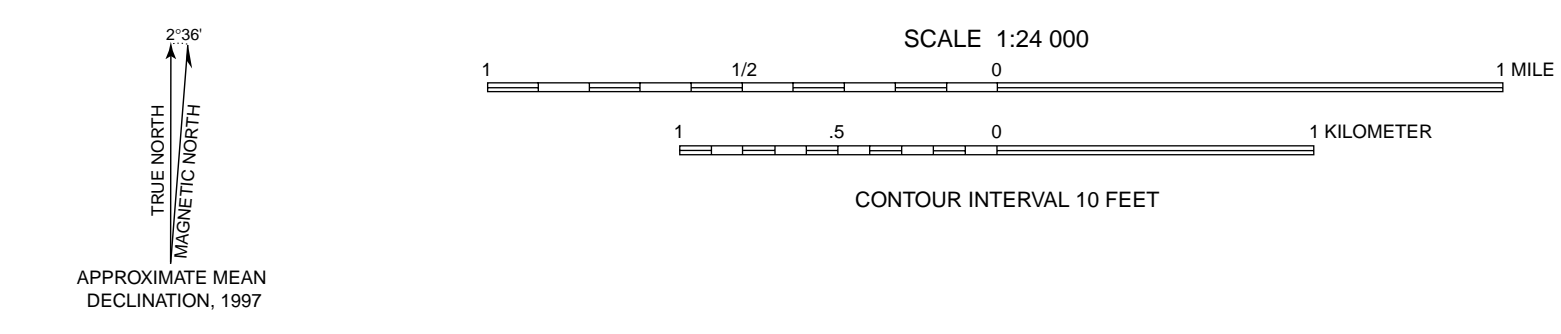
ACKNOWLEDGMENTS

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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, it should not be used to guide engineering-scale decisions without site-specific verification.



Base modified from U.S. Geological Survey Shakopee, 1958, photorevised 1993. Polyconic Projection, grid zone 15 1927 North American Datum.



GIS compilation and cartography by Joyce Meints and Philip Heywood

SURFICIAL GEOLOGIC MAP OF THE SHAKOPEE QUADRANGLE, CARVER, SCOTT, AND HENNEPIN COUNTIES, MINNESOTA

By
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