

**DESCRIPTION OF MAP UNITS**

**a2**—artificial fill (modern)—Mine spoil overlying reclaimed strip mines.

**Qal**—Alluvium (Holocene)—Silty clay, clayey silt, and silt containing minor fine sand and gravel. Found along Panther Creek and minor tributaries. Qal is relatively thin and inset into adjacent map units; contact with adjacent units varies from sharp to poorly defined.

**Qes**—Less (Pleistocene)—Buff (2.5Y 7/3) to brownish (2.5Y 6/4) blowdown silt, clayey silt, and fine sand. Qes is up to 36 ft (11 m) thick near the Ohio River and thins to the south. Commonly massive and unsorted, locally has subtle variations, texture and oxidation indicate concentric bedding draped over pre-existing landforms; top meter bioturbated by flora and fauna and locally have lamellae. Recent unpublished radiocarbon ages of strata and thermoluminescence dates of silt suggest deposition of Qes occurred between 22,600 to less than 14,000 ybp.

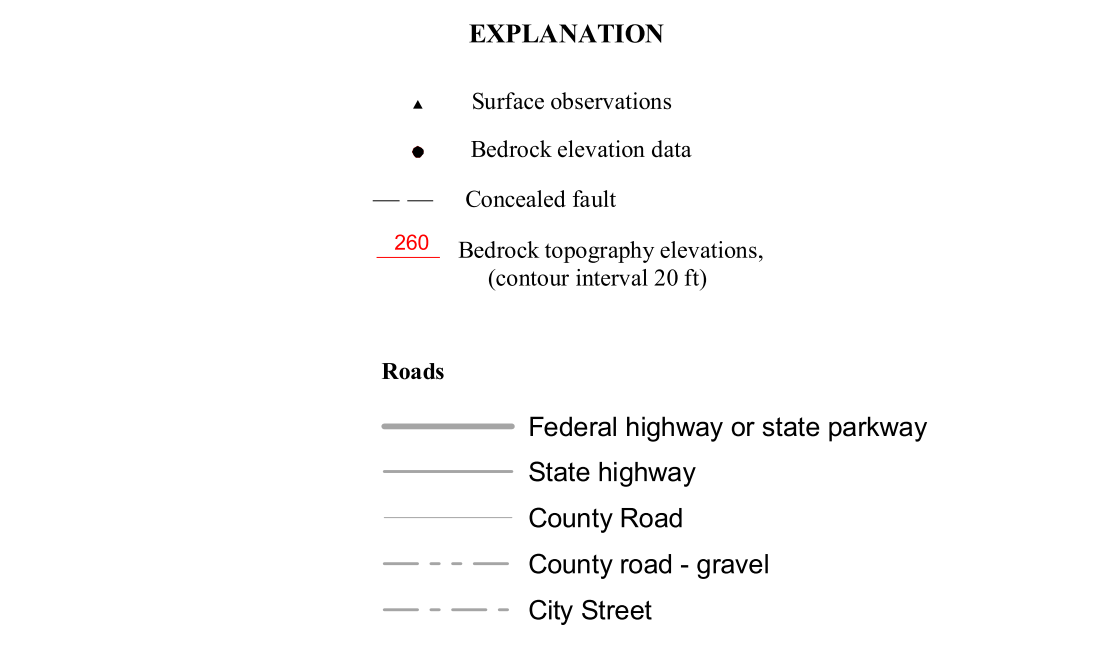
**Ql**—Dune sand (Pleistocene)—Very fine to fine windblown sand derived from outwash plains of the Ohio River and/or Green River. Deposited in long, narrow, linear ridges and locally contains lenses of clayey silt and silt, mantled with up to 8 ft (2 m) of loess; thickness uncertain.

**Qlm**—Lacustrine terrace (Pleistocene)—Brownish silty clay to clayey silt (10YR 4/4) ranging from 25 to 45 feet thick (8 to 14 m), relict geomorphic zones with gray (day) (7M) and reddish to maroon (2.5Y 4/6), laminated below zones of bioturbation and pedogenesis. Unit deposited in lacustrine and slackwater environments that formed when the Ohio River aggraded and locally responded its tributaries. Fossils from a mammoth and a giant sloth have been discovered in Ql deposits in this region. Ql is mantled by loess and underlain by a complex unit of apparent mixed fluvial and fluvio-lacustrine origin. Recent unpublished radiocarbon dates of 22,450 ± 90 and 22,060 ± 80 radiocarbon ybp are consistent with previous dates of 18,520 ± 500 and 19,840 ± 300 (Rabin and Alexander, 1960; samples W-520 and W-845). Contact between Ql and Qlm is poorly defined or very subtle and is primarily based on slope breaks along the margins of Ql and Qlm.

**Qm**—Lacustrine margin (Pleistocene)—Brown (10YR 4/4) clayey silt, silt, and fine sand found adjacent to upland areas; unit is a complex transition zone between Qal and Ql represented by silt transported downslope as slipwash, lacustrine clay and silt deposited on hillslopes by prograding lakes, and in the southwestern corner of the quadrangle by colluvium on very steep slopes.

**Qp**—Upland gravels (Pliocene)—Clast- to matrix-supported pebbled gravel with medium to coarse sand. Clasts are predominantly chert pebbles with a brown patina, brownish sandstone, and white quartz; matrix is sandy clay to clay, though some clay appears pedogenic. Gravel overlies bedrock but is rarely exposed and is covered with loess. Lithologically comparable to the Lucas Gravel of Ray (1965).

**Pz**—Bedrock (Pennsylvanian)—Consolidated shale, sandstone, coal, and overlying poorly sorted regolith, comprise the core of the uplands and includes areas of loess that are thinner than 3 ft (1 m).



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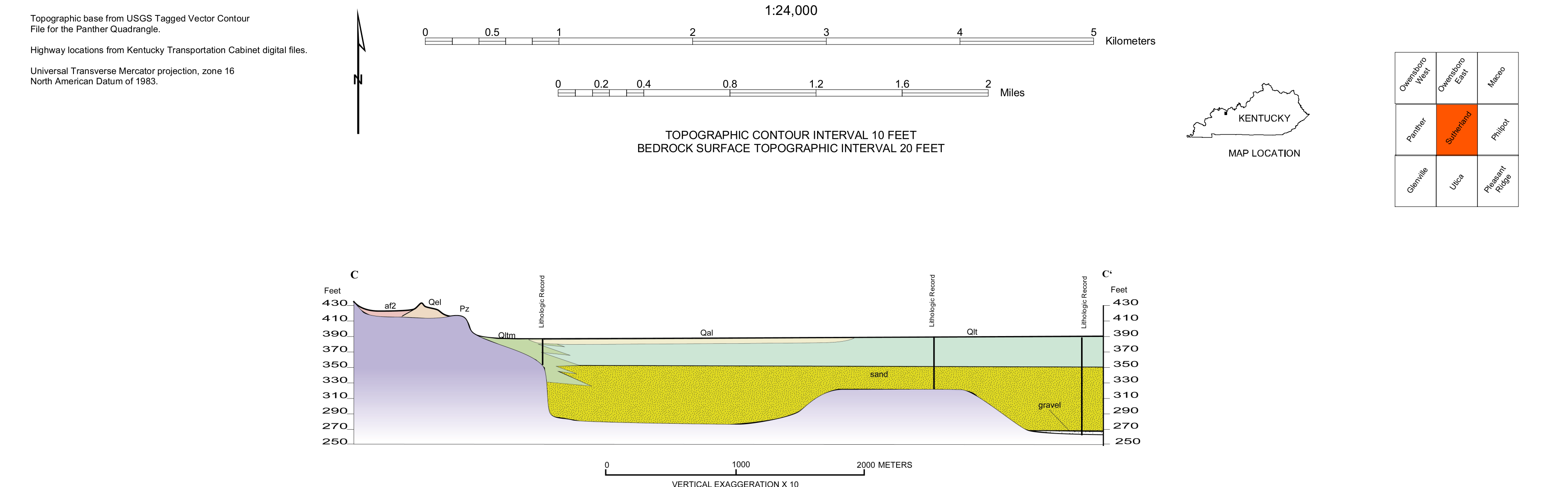
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**QUATERNARY GEOLOGY OF THE SUTHERLAND 7.5- MINUTE QUADRANGLE, WESTERN KENTUCKY**

By  
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