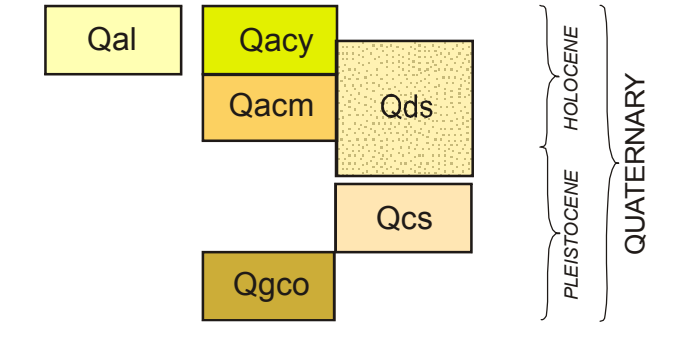


CORRELATION OF MAP UNITS

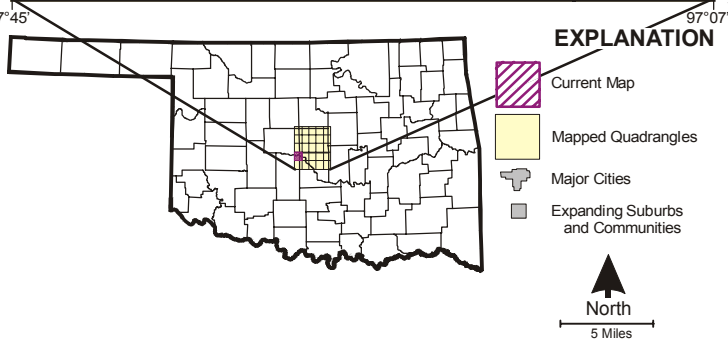
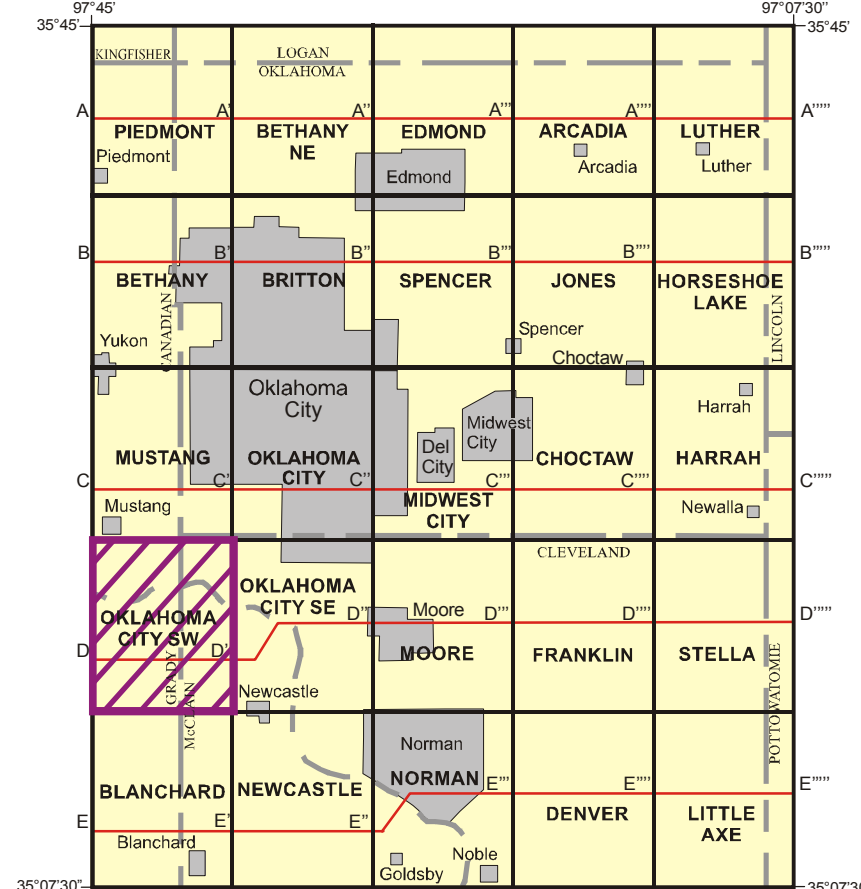


DESCRIPTION OF UNITS

- Qal** ALLUVIUM (Holocene)—Clay, silt, sand, and gravel in channels and on flood plains of modern streams. Thickness: 0 to about 25 ft
- Qacy** ALLUVIUM OF CANADIAN RIVER (Holocene)—Clay, silt, sand, and gravel in channels and on flood plain of Canadian River. Area probably subject to frequent flooding. Thickness: generally 0 to 40 ft; rarely more than 40 ft
- Qacm** ALLUVIUM OF CANADIAN RIVER (Holocene)—Clay, silt, sand, and gravel on flood plain of Canadian River about 10 to 15 ft above Qacy. Area rarely subject to flooding. Thickness: unknown, possibly as much as 50 ft
- Qds** DUNE SAND (Holocene and Pleistocene?)—Fine- to medium-grained, moderately to poorly sorted sand. Consists mainly of rounded to subrounded quartz grains with some silt- and clay-size material. Probably represents aeolian reworking of Holocene Alluvium of Canadian River (Qacm) and Pleistocene Cover Sand (Qcs). Thickness: 0 to about 50 ft
- Qcs** COVER SAND (Pleistocene)—Poorly sorted fine-grained sand and silt with some clay-size material. Forms extensive, almost flat surfaces 50 or more feet above Canadian River. Thickness: generally 5 to 10 ft, rarely as much as 50 ft
- Qgco** REMNANTS OF OLDER TERRACE DEPOSITS (Pleistocene)—Clay, silt, sand, and gravel adjacent to the flood plain of the Canadian River. Sand commonly is medium- to coarse-grained and very light colored; gravel locally consists of concentrations of distally derived pebbles and cobbles, mostly subrounded quartz and quartzite. Base of unit varies from 40 to 90 ft above the modern flood plain of the Canadian River and ranges in elevation from about 1240 to 1295 ft above sea level. The top of the unit is as much as 100 ft above the modern flood plain and is as high as 1300 ft above sea level. Thickness: 0 to 60 ft
- Pdn** DUNCAN FORMATION (Permian)—Sandstone, fine- to very fine grained, rarely medium-grained, commonly muddy to silty, mudstone- and siltstone-pebble conglomerates; and very minor siltstone and mudstone. Sandstones vary from unstratified to stratified and typically show small- to large-scale cross-stratification. Color varies from moderate reddish brown (10R4/6) to rarely dark reddish brown (10R3/4) or grayish red (10R4/2), iron oxide is predominant cement, although calcite cement does occur in patches. Sandstones locally contain mudstone and siltstone clasts that show varying degrees of disaggregation from completely disaggregated (resulting in very muddy or silty sandstone) to coherent (clasts in well-sorted sandstone). Sandstone beds also may laterally grade into moderately indurated siltstone- and/or mudstone-pebble conglomerates. Clasts may be imbricated or loosely oriented into planar cross-beds. Conglomerates typically pale brown (5YR5/2) and well cemented with calcite. Locally, greenish gray (5GY6/1) bands, beds, and irregular spots occur in sandstones, siltstones, and mudstones. Small, rarely hollow tubules that may be root casts are uncommon in conglomerates. Thickness: about 300 ft based on cross section, but top not exposed
- Phy** HENNESSEY FORMATION (Permian)—Mostly silty mudstone, muddy siltstone, and minor very fine grained sandstone, mostly moderate reddish brown (10R4/6) to light brown (5YR5/6), locally banded with yellowish gray (5Y7/2) and light greenish gray (5GY6/1) beds. Very poorly exposed in urban areas, poorly exposed in rural areas; mostly covered by a thin veneer of Pleistocene Cover Sand (Qcs). Contains common iron-reduction spots, light greenish gray (5GY6/1 to 5GY8/1) to pale green (10G5/2) to very pale green (10G8/2), as large as 5 in. in diameter, and bands the same color subparallel to bedding. Mudstone typically unbedded and highly fractured to fissile; rarely with small-scale slickensides that are evidence of paleosol development. Siltstone moderately to well-stratified. Sandstone locally cross-stratified on large and small scale, uncommonly trough-cross-stratified and/or ripple marked. Shale rip-up clasts very rare. Mudstone outcrops locally weather to blocky, very fractured, or "hackly" appearance. In other places, mudstone weathers to muddy soil with abundant small calcareous nodules. Siltstone and sandstone exhibit platy to flaggy weathering. Calcite cement uncommon. Thickness: about 650 ft based on cross section, but base not exposed

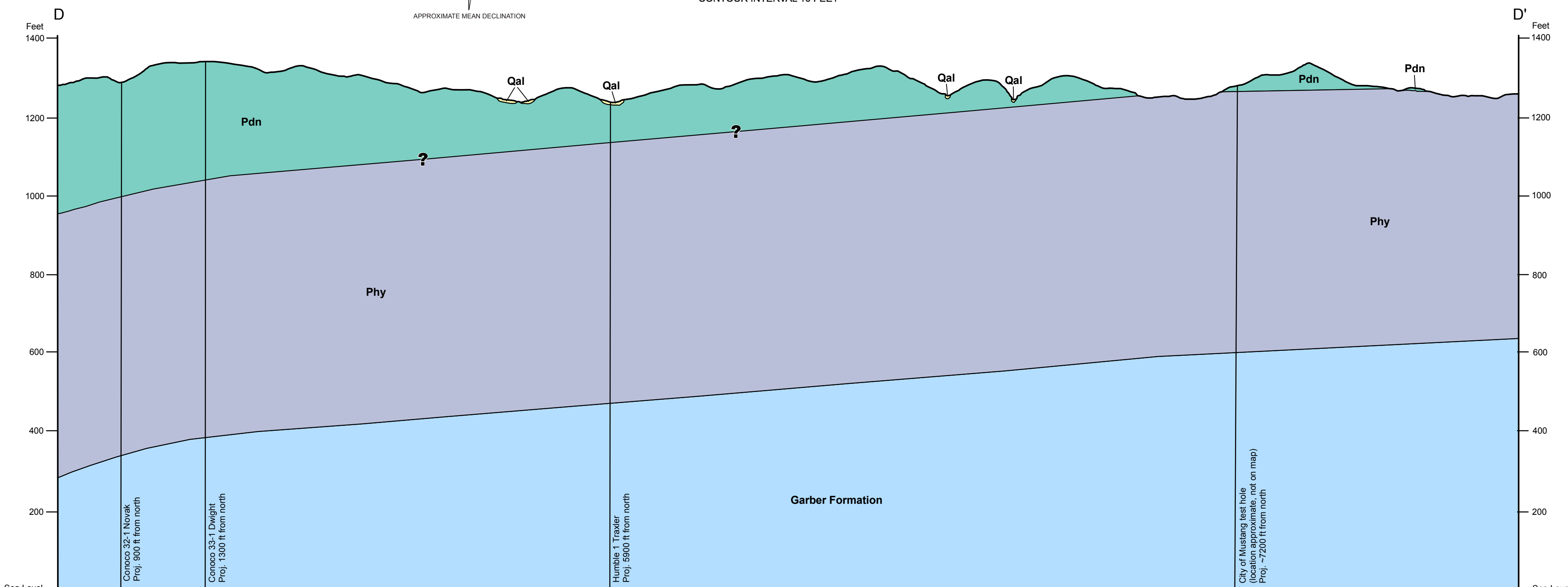
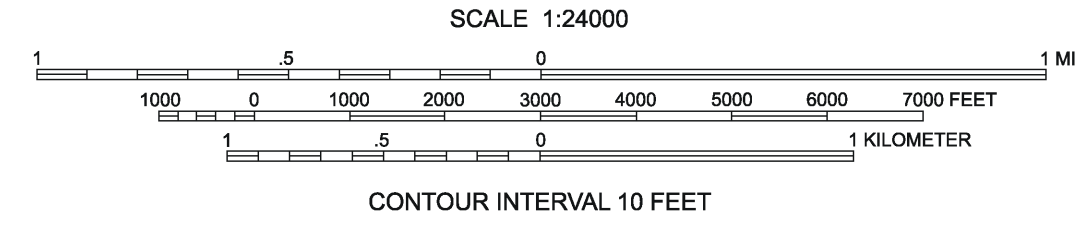
SYMBOLS

- Unit contact; dashed where approximate
- x Outcrop, geologic observation
- Petroleum well. Includes oil, gas, oil and gas, dry, service (water supply or injection), junked and abandoned, unknown. Modified from Natural Resources Information System database
- o Municipal water well



Base Map Credits
The base map was compiled by the U.S. Geological Survey by photogrammetric methods from aerial photographs taken 1964. Field checked 1965. Photoreduced from aerial photographs taken 1961 and other sources. Map edited 1963. Universal Transverse Mercator (UTM) projection, 1987 North American Datum, 10,000-foot grid ticks based on Oklahoma coordinate system, south zone, 1,000-meter UTM grid, zone 14.

Geologic Map Credits
Geology by Neil H. Suneson and Thomas M. Stanley, 2001-2002. Research supported by the U.S. Geological Survey, National Cooperative Geologic Mapping Program, under Assistance Award Number 00-020002. The views and conclusions contained in this document are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the U.S. Government. Originally published as Open File Report OF5-2001. Map revised and published as OGQ 23. Cartography and layout prepared by G. Russell Sandridge, 2002.



10x vertical exaggeration. Formation contacts based on wire-line-log interpretations by N.H. Suneson and surface mapping by the authors. Vertical lines show logs used in interpretations.

Conoco 32-1 Newark
Top: 500 ft from north

Conoco 33-1 Dwight
Top: 1300 ft from north

Mustang 11 Trask
Top: 5500 ft from north

City of Mustang test hole
Top: 2200 ft from north

GEOLOGIC MAP OF THE OKLAHOMA CITY SOUTHWEST 7.5' QUADRANGLE, CANADIAN, CLEVELAND, GRADY, AND McCLAIN COUNTIES, OKLAHOMA
Neil H. Suneson and Thomas M. Stanley
2001