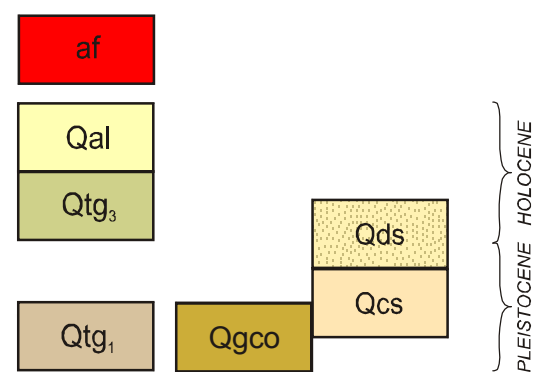


CORRELATION OF MAP UNITS

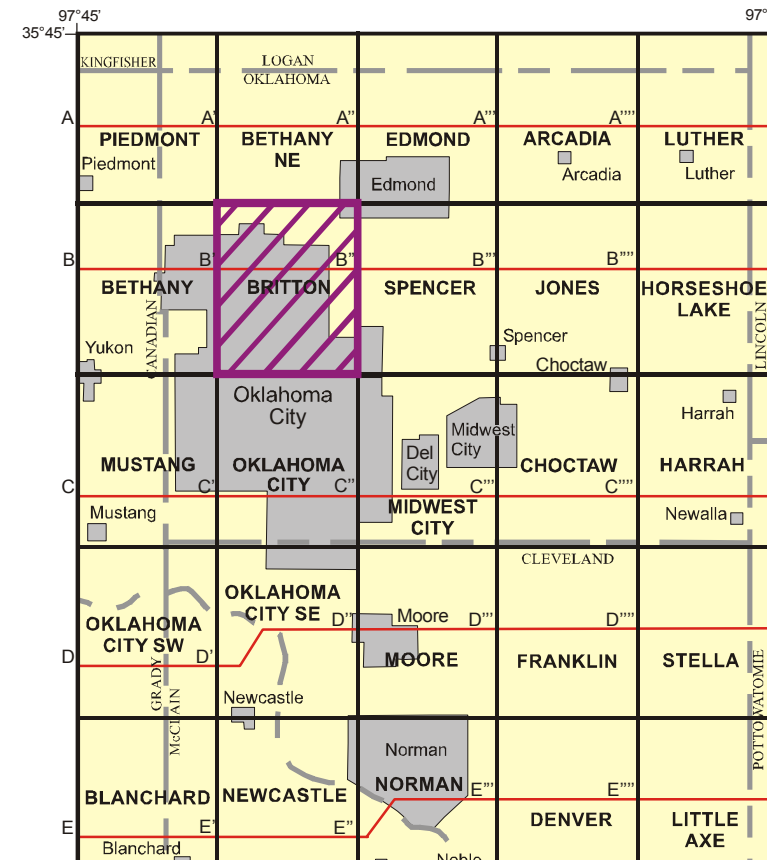


DESCRIPTION OF UNITS

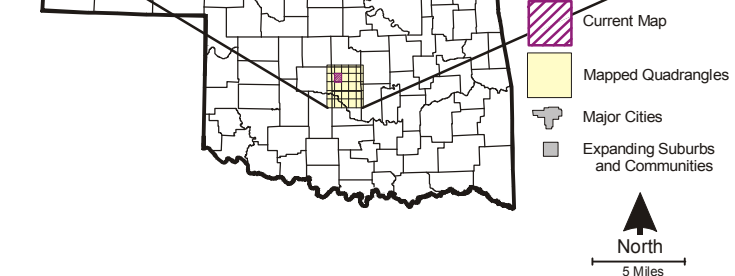
- af** ARTIFICIAL FILL—Natural or artificial slumps, cavings, or talus covering formerly exposed areas. Most deposits of this type found around man-made earthen dams and large-scale land-fills. Thickness variable
- Qal** ALLUVIUM (Holocene)—Clay, silt, sand, and gravel in channels and on flood plains of modern streams. Thickness: 0 to about 25 ft
- Qds** DUNE SAND (Holocene and Pleistocene?)—Fine- to coarse-grained, moderately to poorly sorted sand. Consists mainly of rounded to subrounded quartz grains, with some silt and clay-size material. Probably represents eolian reworking of Pleistocene terrace deposit Qgco present in Bethany quadrangle to the west. Thickness: 0 to 50 ft
- Qcs** COVER SAND (Holocene and Pleistocene?)—Unconsolidated, very fine-grained sand to coarse-grained silt and clay, moderately to poorly sorted. Consists mainly of rounded to subrounded quartz grains, with abundant silt- and clay-size material. Forms extensive nearly flat topographic surfaces as much as 80 ft above modern alluvial valleys. Probably represents aeolian reworking of Pleistocene and younger fluvial terrace deposits. Thickness: from a thin veneer to as much as 30 ft, averages closer to 5 ft thick.
- Qtg** TERRACE DEPOSITS (Holocene and/or Pleistocene)—Clay, silt, sand, and gravel on terraces immediately above and adjacent to modern flood plains. Contains a significant amount of distally derived sediment, mostly subrounded quartz and quartzite cobbles and pebbles. Thickness: 0 to about 20 ft
- Qtg** REMNANTS OF TERRACE DEPOSITS (Pleistocene)—Concentrations of distally derived sediment, mostly subrounded quartz and quartzite cobbles and pebbles, more than 20 ft above modern flood plains. Deposits are in Cimarron River drainage basin. May represent part of former course of North Canadian River or eroded and redeposited Pleistocene gravel similar to Qgco course in Bethany quadrangle to west. Thickness: 0 to about 20 ft
- Qgo** REMNANTS OF OLDER TERRACE DEPOSITS (Pleistocene)—Clay, silt, sand, and gravel adjacent to the flood plain of the North 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. Thickness: 0 to 30 ft
- Phy** HENNESSEY FORMATION (Permian)—Muddy siltstone, silty shale, and minor very fine-grained sandstone, mostly moderate reddish brown (10R4/6) to light brown (5YR5/6), locally banded with yellowish gray (5Y7/2) beds. Very poorly exposed in urban areas, poorly exposed in rural areas. Contains common iron-reduction spots, light greenish gray (5GY6/1 to 5GY8/1) to pale green (10G6/2) to very pale green (10G8/2), as large as 5 in. in diameter, and bands the same color subparallel to bedding. Shale typically unstratified 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. Trace fossils and shale rip-up clasts very rare. Sandstone rarely forms channel-form deposits. Shale outcrops locally weather to blocky, very fractured, or "hacky" appearance, form bare, rounded outcrops and/or "badland"-type topography. In other places, shale weathers to muddy soil with abundant small calcareous nodules. Calcite veinlets uncommon. Interbedded siltstone and shale weather to bench- and slope topography. Siltstone and sandstone exhibit platy to flaggy weathering
- Pgr** GARBER FORMATION (Permian)—Sandstone, fine-grained to very fine grained, less commonly medium-fine-grained, moderate reddish brown (10R4/6) to yellowish gray (5Y8/1), less common siltstone, shale, and siltstone conglomerate. Sandstone generally porous and friable; less commonly variably cemented by hematite, calcite, and/or silica. Large- and small-scale cross-bedding and trough cross-bedding common; bedding planes in outcrops typically inclined. Less commonly parallel- or wavy-bedded. Iron-reduction spots extremely rare, although sandstone locally has banded appearance. Weathers to slabs, flagstones, or thin plates. Siltstone and shale sandy, locally with iron-reduction spots and/or bands. Siltstone and shale appear to be more common near top of formation. Thickness: about 70 ft, base not exposed

References

Bingham, R.C., and Moore, R.L., 1975. Reconnaissance of the water resources of the Oklahoma City quadrangle, central Oklahoma: Oklahoma Geological Survey Hydrologic Atlas 4, 4 sheets, scale 1:250,000.



EXPLANATION



Base Map Credits

The base map was compiled by the U.S. Geological Survey, Planimetry by photogrammetric methods from aerial photographs taken 1941, 1945, and 1960. Topography by planimetric surveys 1951. Revised from photographs taken 1984. Field checked 1985. Map edited 1986. Unchecked. Transverse Mercator (UTM) projection 1983 North American Datum. 10,000-foot grid ticks based on Oklahoma coordinate system north and south zones. 1:50,000-meter UTM grid zone 14.

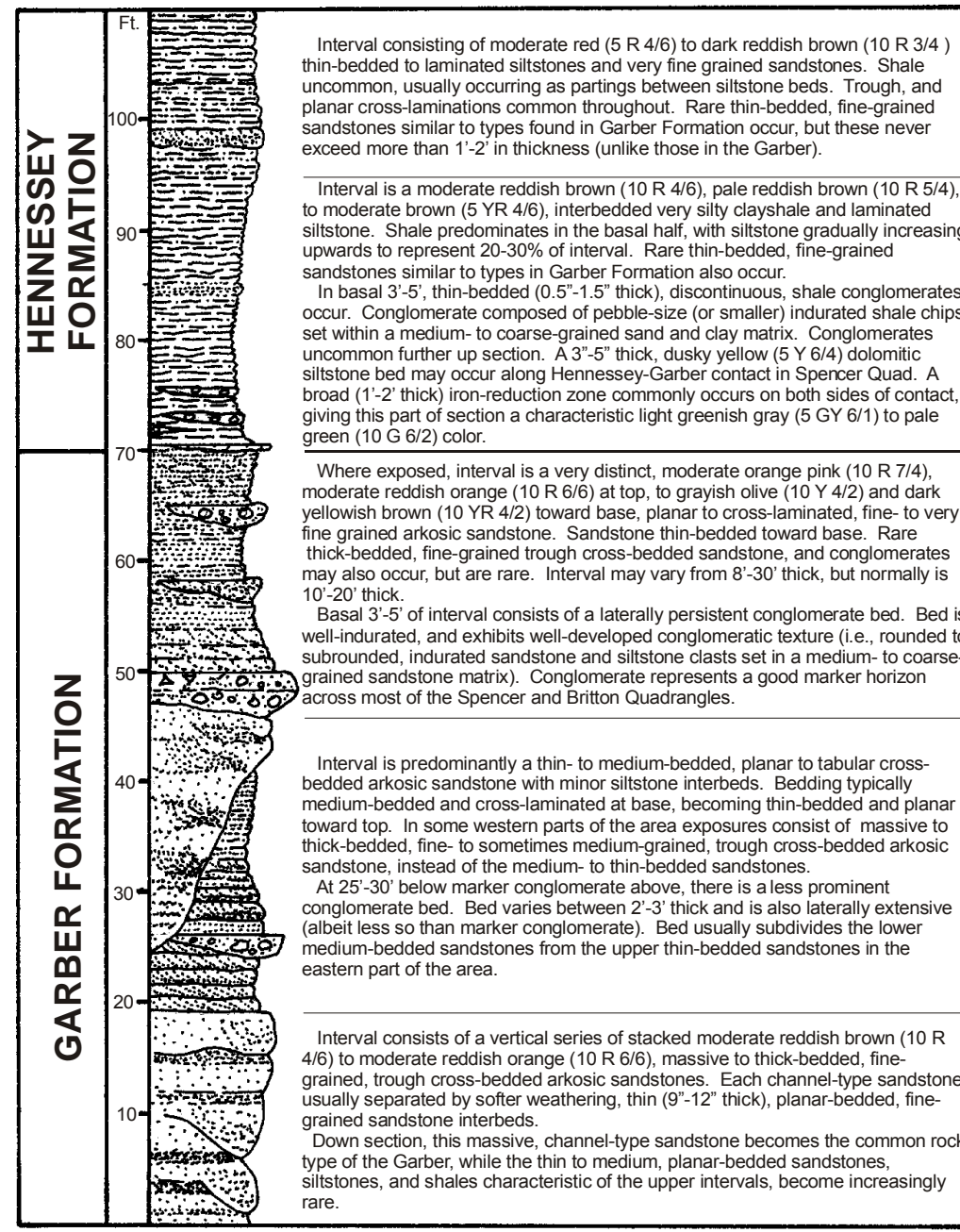
Geologic Map Credits

Geology by Neil H. Suneson and Thomas M. Stanley, 1998-1999. Research supported by the U.S. Geological Survey, National Cooperative Geologic Mapping Program, under Assistance Award Number 98HQ02060. The views and conclusions contained in this document are those of the authors and should not be interpreted as necessarily representing the official policies, views, or opinions of the U.S. Government. Published originally as Open-File Report 2-99 as an author-prepared, black-and-white paper map. Digitally reproduced in color as Open-File Report OF-2004. Map revised and published as OGQ-49. Cartography and layout prepared by G. Russell Standridge, 2005.

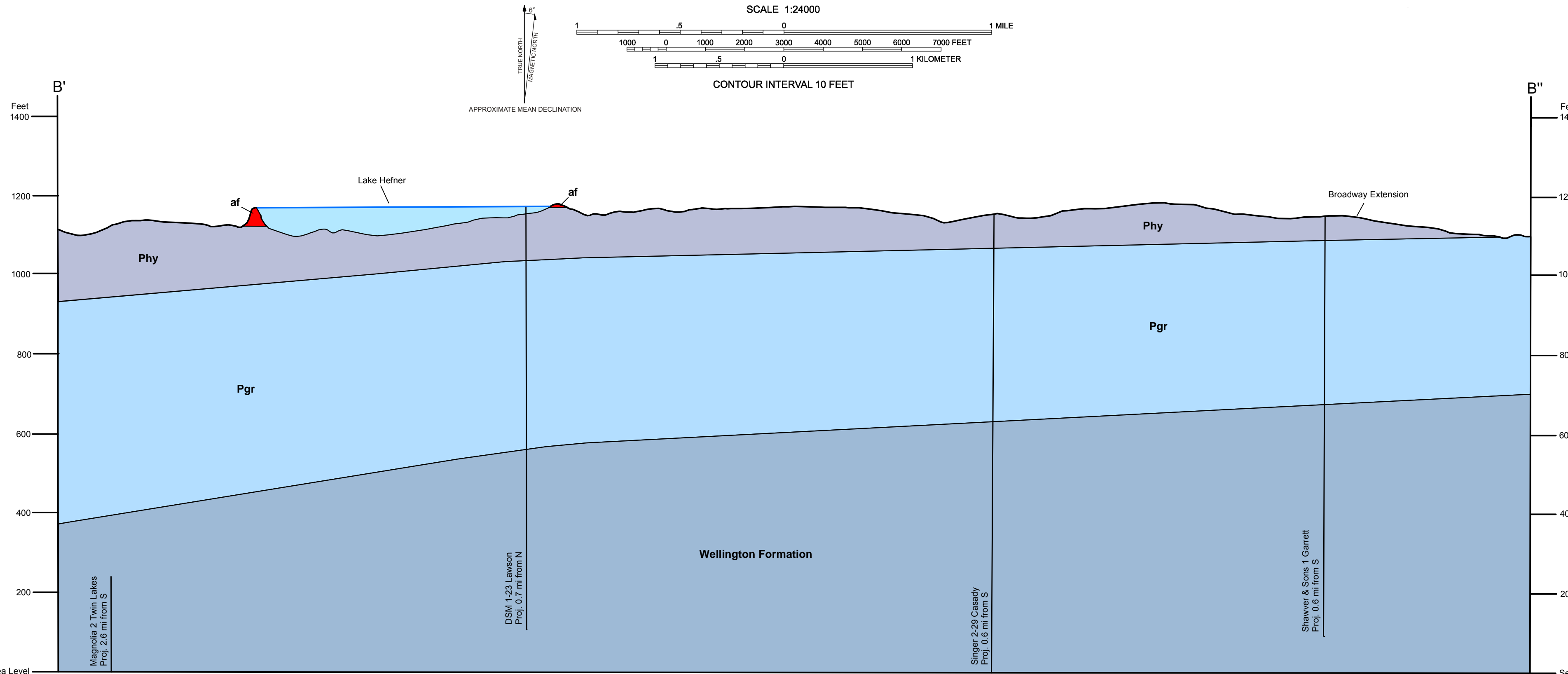
SYMBOLS

- Unit contact; dashed where approximate
- Mappable bed
- x Outcrop, geologic observation
- x→ Outcrop, bearing of paleocurrent direction
- Outcrop, azimuth of paleocurrent direction
- x_o Outcrop, location used for composite measured section
- Exotic (quartz, quartzite) pebbles and cobbles
- 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
- Municipal water well
- Quarry
- Strike and dip of bed. Dip given in degrees
- Axis of anticline

Composite Profile 'B' Across The Garber-Hennessey Contact
Sections measured in S 1/2, Secs. 23 and 24, T. 13 N., R. 3 W., Spencer 7.5' Quad, (1986 ed.), and from the N 1/2, Sec. 10, T. 12 N., R. 3 W., Britton 7.5' Quad, (1986 ed.), Oklahoma Co., OK.



Measured and described by: T.M. Stanley



GEOLOGIC MAP OF THE BRITTON 7.5' QUADRANGLE,
OKLAHOMA COUNTY, OKLAHOMA

Neil H. Suneson and Thomas M. Stanley
1999