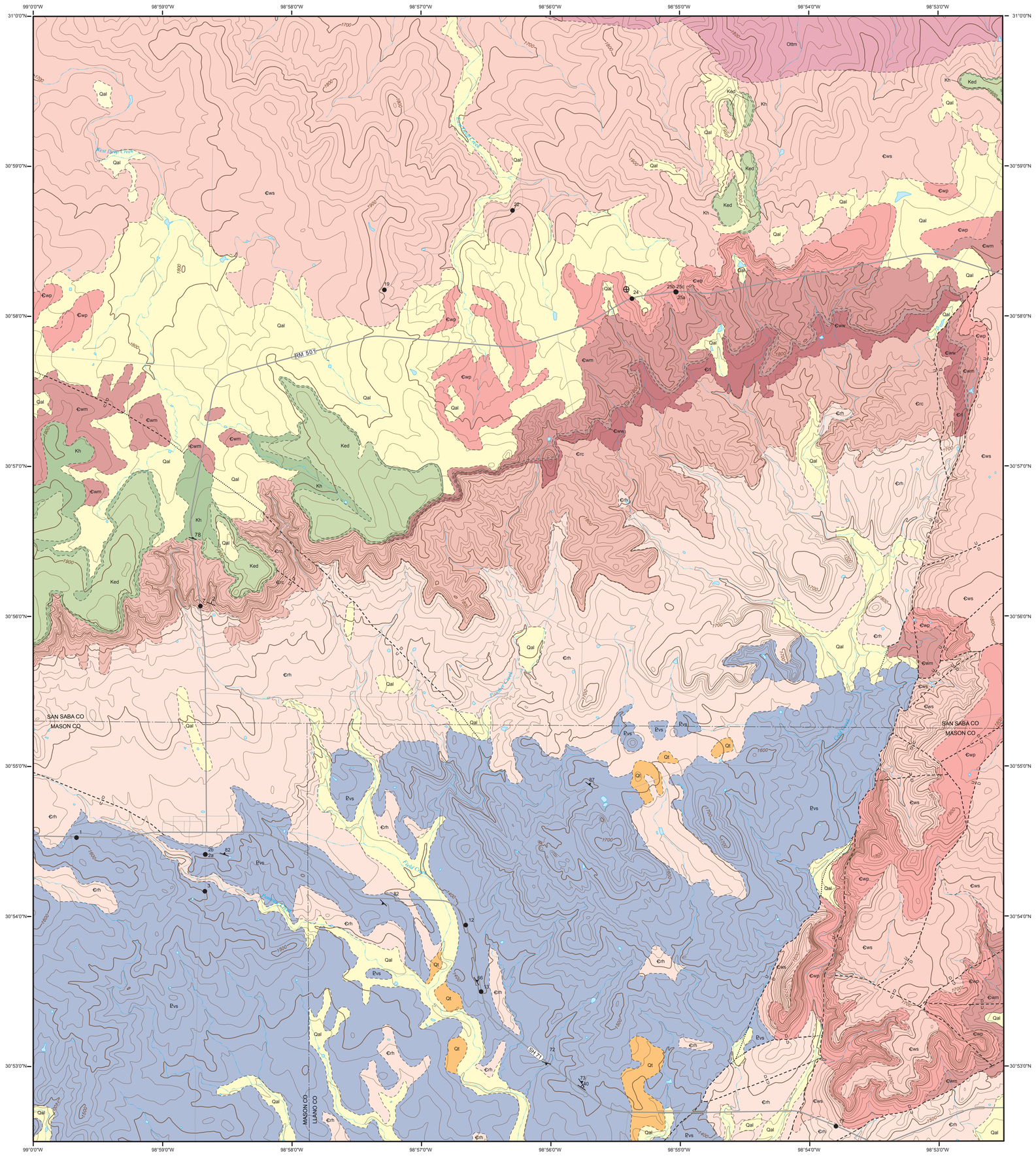
BUREAU OF ECONOMIC GEOLOGY
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THE UNIVERSITY OF TEXAS AT AUSTIN

In cooperation with the State of Texas Advanced Resource Recovery Program and the U.S. Geological Survey National Cooperative Geologic Mapping Program under STATEMAP award number G16AC00194, 2016

GEOLOGIC MAP OF THE
PONTOTOC QUADRANGLE, TEXAS
OPEN-FILE MAP NO 230



DESCRIPTION OF GEOLOGIC MAP UNITS

This map is constructed for the study of sand resources in the region. The map shows the distribution of geologic units southeast of the town of Brady, in the Central Texas sand district east of the town of Voca, in the Pontotoc quadrangle. Geologic Units were mapped and structural measurements were taken in the field; where bedrock units are covered by surficial units and vegetation, or access is limited, units were interpreted using aerial imagery, soil data, well-drilling records, and previous mapping

BEDROCK UNITS

QUATERNARY

Qal—Alluvium: River and stream floodplain deposits, silty sand, mud, channel gravel, rounded pebbles, and cobbles.

Qt—Fluviatile terrace deposits: Gravel, silt, sand, and clay; increasing amounts of granitic grus and sand around the Valley Spring Gneiss and Hickory Sandstone formations. These deposits are mostly flood level along entrenched streams and accumulations of granitic grus in low-lying drainage areas.

CRETACEOUS

Ked—Edwards Limestone: Fine-grained, argillaceous, locally siliceous, thin-bedded to nodular and massive, light-gray to light-brown limestone with marine miliolid, gastropod, and rustid, fossils. Some dolomite and chert nodules are present, with a total unit thickness between 10 and 40 m.

Kh—Hensell Sand: Fine- to very fine-grained, tan-yellow, orange and red, locally coarse-grained, argillaceous, massive, locally cross-bedded and ripple-marked sandstone. Sandstone contains interbeds of sandy, silty, calcareous claystone and sandy, caliche-cemented conglomerate with pebbles of chert and quartz, and basal granite grus gravel.

ORDIVICIAN

Tanyard Formation

Ottm—Staendebach Member Limestone: Fine- to medium-grained, light-gray to brown-gray, thick- to thin-bedded limestone (Ottc) and dolomitic limestone (Ottm). Locally cherty and grading westward into predominantly limestone, with gastropod, cephalopod, and trilobite fossils preserved in cherty areas. Thickness is about 200 m, thinning westward.

CAMBRIAN

Wilberns Formation

Ews—San Saba Member (undivided): Thick- to thin-bedded, occasionally cherty or glauconitic, fine- to very fine-grained, gray to dark-gray limestone and dolomite. Thickness is about 100 m, becoming more granular and limestone-dominant westward.

Ewp—Point Peak Member (undivided): Thinly bedded, gray to brown-gray siltstone containing abundant authigenic feldspar interbeds of fine-grained stromatolitic limestone; intraformational conglomerate; and thin, silty, gray-green shale beds. Thickness is about 40 m, thinning westward.

Ewm—Morgan Creek Limestone Member: Granular, glauconitic, thick- to thin-bedded, brown to gray-brown limestone with thin interbeds of siltstone. Fossils include trilobites, calcareous brachiopods, and aphanitic stromatolite in upper sections.

Eww—Welge Sandstone Member: Coarse- to medium-grained, pale to dark yellow-brown, typically glauconitic, occasionally fossiliferous, well-sorted, quartz sandstone. Thickness is variable, 3–10 m, with lower disconformity contact and gradational upper contact into Morgan Creek Limestone Member.

Riley Formation

Erl—Lion Mountain Sandstone Member: Coarse- to fine-grained glauconitic quartz sandstone, with lenses of sandy limestone, trilobite coquina, limestone containing phosphatic brachiopods, and occasionally siltstone and shale. Thickness ranges between 10 and 25 m.

Erc—Cap Mountain Limestone Member: Granular, thick-bedded, occasionally glauconitic or oolitic, green-gray to yellow-brown limestone grading into calcareous sandstone and siltstone at the base. Limestone is about 50 to 75 m thick and thins northward.

Erh—Hickory Sandstone Member—Upper: medium- to coarse-grained, exceptionally well-rounded, hematite-cemented, orange and red to red-brown, <10-m-thick sandstone; Middle: fine-to medium-grained argillaceous, silty, thin-bedded, orange to red, crossbedded, <30-m-thick sandstone; Lower: forming most if the Hickory Sandstone in the map area, fine- to coarse-grained, poorly sorted, yellow-gray to yellow, cross-bedded, 30 to 80-m-thick sandstone with coarse sand and gravel base in contact with nonconformable Precambrian rocks.

PROTEROZOIC

Pvs—Valley Spring Gneiss: Fine- to medium-grained, well-foliated, heterogenous, pink to gray, alkali-feldspar augen gneiss, occasionally containing coarse microcline feldspar pegmatitic lenses and local biotite and/or amphibole schist fragments.

MAP SYMBOLS

- BODY OF WATER
- INTERMITTENT STREAM/CREEK
- HIGHWAY
- ROAD/STREET
- NORMAL FAULT (concealed)
- NORMAL FAULT (inferred)
- HORIZONTAL BEDDING
- NORMAL FAULT—Showing sense of motion. U, upthrown block; D, downthrown block.
- 412 GEOCHEMICAL SAMPLE LOCALITY—Location of sample taken for analytical work.
- 22 BEDDING—Sedimentary bedding plane showing strike and dip.
- 57 DIKE—Dike orientation showing strike and dip
- 44 FOLIATION—Foliation plane showing strike and dip
- 46 NORMAL FAULT—Fault plane orientation showing strike and dip

REFERENCES

Barnes, V. E., 1981, Geologic Atlas of Texas, Llano sheet: The University of Texas at Austin, Bureau of Economic Geology, scale 1:250,000.

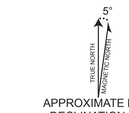
Barnes, V. E. and Bell, W. C., 1977, The Moore Hollow Group of Central Texas: The University of Texas at Austin, Bureau of Economic Geology, Report of Investigations No. 88, 169 p.

Barnes, V. E. and Schofield, D. A., 1964, Potential low-grade iron ore and hydraulic fracturing sand in Cambrian sandstones, Northwestern Llano Region, Texas: The University of Texas at Austin, Bureau of Economic Geology, Report of Investigations No. 53,58 p.

Krause, S. J., 1996, Stratigraphic framework, facies analysis, and depositional history of the Middle to Late Cambrian Riley Formation, Central Texas: Master's thesis: The University of Texas at Austin, 172 p.

Kyle, J. R. and McBride, E. F., 2012, Geology of the Voca Frac Sand District, western Llano Uplift, Texas, Proceedings from the 48th Annual Forum on the geology of Industrial Minerals: Arizona Geological Survey, Special Paper 9, 13 p.

BUREAU OF ECONOMIC GEOLOGY



APPROXIMATE MEAN
DECLINATION, 2017



SCALE 1:24,000

UNIVERSAL TRANSVERSE MERCATOR PROJECTION, ZONE 14N, NAD 83
CONTOUR INTERVAL 20 FT
DATUM IS MEAN SEA LEVEL



GEOLOGIC MAP OF THE PONTOTOC QUADRANGLE, TEXAS

Brent A. Elliott

2017

Topographic base map from:

U. S. Geological Survey 2016; Imagery; 2014

Projection:

Universal Transverse Mercator Zone 14N

Datum:

Barnes, V. E., 1981
Barnes, V. E. and Bell, W. C., 1977
Barnes, V. E. and Schofield, D. A., 1964
Krause, S. J., 1996
Kyle, J. R. and McBride, E. F., 2012

Previous faults mapped by:

Barnes, V. E., 1981
Barnes, V. E. and Schofield, D. A., 1964

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