MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

OFFICE OF GEOLOGY

OPEN-FILE REPORT 317

GEOLOGIC MAP
of the
BISSELL QUADRANGLE

Lee and Pontotoc Counties, Mississippi

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and Earnest E. Russell, PhD

Cross-Section by Darrel Schmitz, RPG
and Jonathan R. Leard, GIT

2019

DESCRIPTION OF MAP UNITS

QUATERNARY

HOLOCENE

Fill — ARTIFICIAL FILL
Mainly silt and sand over original geologic unit. Generally red-brown and yellowish-orange.

Qal — ALLUVIUM
Floodplain deposits of clay, silt, and sand. Generally gray, yellowish-orange, orange, and tan. Approximately 25 feet thick along larger streams, thinning up tributaries.

PLEISTOCENE

Qt1 Qt2 Qt3 Qt4 Qt5 Qt6 — TERRACE ALLUVIUM
Abandoned floodplain deposits of clay, silt, and sand generally yellowish-orange, orange, and tan. Approximately 25 feet thick adjacent to larger stream Alluvium or younger terrace deposits, thinning or non-existent up tributaries. Qt1 - youngest and lowest in elevation of Terrace alluvium deposits. Qt2 - second youngest in age and elevation of Terrace alluvium deposits. Qt3 - third youngest in age and elevation of Terrace alluvium deposits. Qt4 - fourth youngest in age and elevation of Terrace alluvium deposits that is more eroded and discontinuous. Qt5 - fifth youngest in age and elevation of Terrace alluvium deposits that is more eroded and discontinuous. Qt6 – sixth youngest in age and elevation of Terrace alluvium deposits. The older in age and higher in elevation Terrace alluvium deposits become increasingly eroded and discontinuous.

CRETACEOUS

UPPER CRETACEOUS

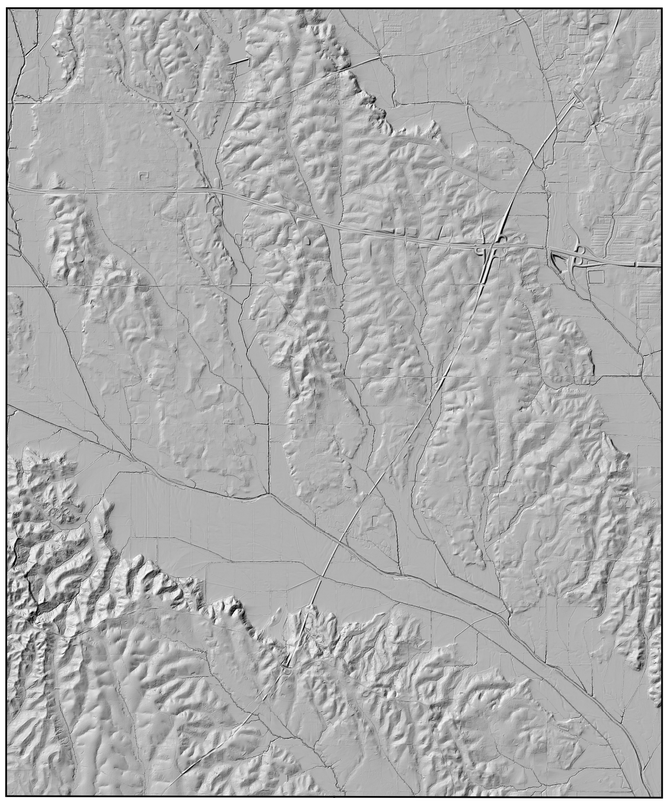
SELMA GROUP

Kr — RIPLEY FORMATION
Clay in lower portion conformably transitioning from underlying Demopolis Chalk. Sand, Chalk and limestone above the transitional clay. Transitional clay is laminated to thin bedded; dark greenish gray, medium gray and reddish tan where highly weathered; locally sandy; and fossiliferous. Sand, chalk and limestone are interbedded lenses of sand, chalky sand, silty chalk or chalky limestone. Sands are tan to red where weathered; fine grained; micaceous; calcareous; and fossiliferous. Chalks are gray to tan; often silty and sandy; and fossiliferous. Limestones are light gray to nearly white where weathered; often sandy; and fossiliferous.Thickness ranges up to 110 feet.

Kd — DEMOPOLIS CHALK
Massive-bedded chalk and marly chalk. Medium to light gray and bluish-gray, weathers to tan. Contains subordinate amounts of pyrite, glauconite, and mica. Fossiliferous in many locations. Thickness ranges up to approximately 300 feet.

K0111 — Drill Hole Locality and Identifier

Surface Mine Identifier



1 0.5 0 1 Miles

2009-2018 Mississippi Statewide LIDAR-Generated DEM and Hill Shade

GEOLOGIC MAP
BISSELL QUADRANGLE
Lee and Union Counties, Mississippi

N W E S

1 0.5 0 1 Miles

1,000 0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 Feet

1 0.5 0 1 Kilometers

Scale 1:24,000
Contour Interval 20 Feet

Geology field checked in 1998 and 2017 using the 1965 photo revised in 1979 U.S. Geological Survey 7.5-minute topographic quadrangle, Universal Transverse Mercator projection, 1927 North American datum, contour interval 20 feet. Universal Transverse Mercator projection, 1983 North American datum. GRS80 spheroid. 1000-meter Universal Transverse Mercator 1983 datum grid ticks, zone 16, shown in red. 1995, magnetic north declination in revised quadrangle center is 2.21° W ± 0.36° changing by 0.08° W per year.

Sources: Contours obtained from Mississippi Automated Resource Information System (MARIS). Public Land Survey System, 1:24,000 scale, railroad features, highway features, and hydrologic information from MARIS. We thank the National Park Service and Mississippi State University for their cooperation and for facilitating the data collection and fieldwork necessary for this mapping project. Public Land Survey System from MARIS, 1:24,000 scale. Lidar from Brad Segrest & Barbara Yassin of The Mississippi Department of Environmental Quality (MDEQ), Natural Resources Conservation Service, National Oceanic and Atmospheric Administration, United States Army Corps of Engineers, and MARIS. Building Footprint data is licensed by Microsoft under the Open Data Commons Open Database License (ODbL). Surface mine locations from MDEQ Office of Geology - Mining and Reclamation Division and USGS.

Geographic Information System by Kate Grala and Darrel Schmitz, Mississippi State University, and Jonathan R. Leard, GIT, MDEQ Office of Geology-Surface Mapping Division. MDEQ does not warrant the accuracy or completeness of the source data. Geologic maps are only a guide to current understanding and do not eliminate the need for detailed investigations of specific sites for specific purposes.

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Structural Cross-Section of the Bissell 7.5-Minute Geologic Quadrangle