MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

OFFICE OF GEOLOGY

OPEN-FILE REPORT 344

GEOLOGIC MAP

of the

TROY QUADRANGLE

Chickasaw and Pontotoc Counties, Mississippi

Geology by
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2024

DESCRIPTION OF MAP UNITS

QUATERNARY

HOLOCENE

Fill — ARTIFICIAL FILL
Anthropogenic fill including earthen, stone, and manufactured materials such as concrete and steel. Mainly silt and sand over original geologic unit. Generally red-brown and yellowish -orange.

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

PLEISTOCENE

Qt1, Qt2, Qt3, Qt4 — TERRACE ALLUVIUM
Abandoned floodplain deposits of clay, silt, and quartz sand. Generally yellowish -orange, orange, and tan, may contain organic matter. 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. The older in age and higher in elevation Terrace alluvium deposits become increasingly eroded and discontinuous.

PALEOGENE

PALEOCENE

Tcl — CLAYTON FORMATION
Sands massive to cross-bedded, red and dark red to reddish-brown, medium to course grained quartz, somewhat silty and clayey. Unconformable with, and in places incised into underlying Prairie Bluff Formation. Limonite near or at the base. Thickness ranges up to approximately 50 feet.

CRETACEOUS

UPPER CRETACEOUS

Kpb — PRAIRIE BLUFF FORMATION
Clay marl with some beds of chalk, blue to gray, weathers white, massive, silty; very fossiliferous, phosphatic molds at the base. Sand, sandstones and sandy marl are present near the top. Total thickness ranges up to approximately 50 feet. Unconformably overlies the Ripley Formation.

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. Contains 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. A coarse grain, tan to brown fossiliferous sand, indurated at places, occurs at the top. Total Thickness ranges up to approximately 170 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 500 feet.

B-0117 — Drill Hole Locality and Identifier

Surface Mine

Tombigbee National Forest Boundary

GEOLOGIC MAP
TROY QUADRANGLE
Chickasaw and Pontotoc Counties, Mississippi

Scale 1:24,000

Contour Interval 20 Feet

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Geology field checked in 2022 and 2023 using the 1966 and 1982 (Modified by the U.S. Forest Service) U.S. Geological Survey 7.5-minute topographic quadrangles, Universal Transverse Mercator projection, 1927 North American datum, contour interval 10 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. 2024 magnetic north declination in revised quadrangle center is 2.48° 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. Borehole Data sourced from the Mississippi Oil and Gas Board and the MDEQ Office of Geology – Environmental Geology Division.

Geographic Information System by Darrel Schmitz, RPG, Mississippi State University, and Jonathan R. Leard, RPG, 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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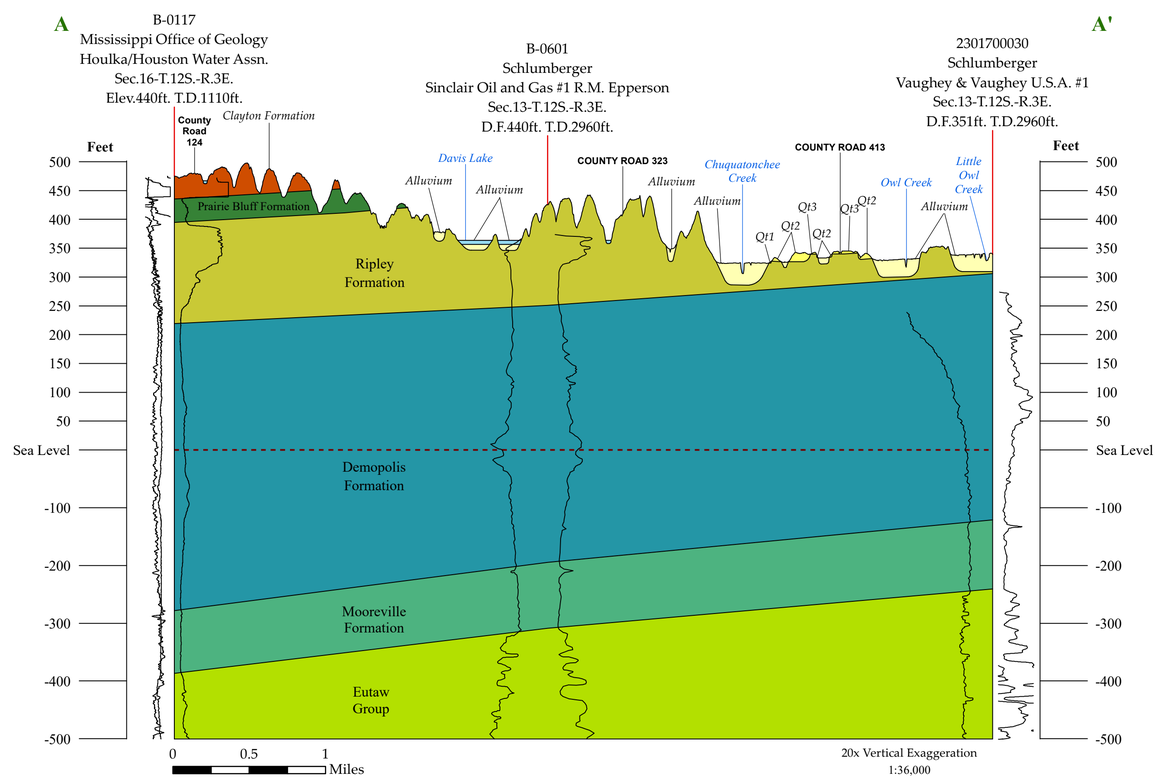
Structural Cross-Section of the Troy 7.5-Minute Geologic Quadrangle



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