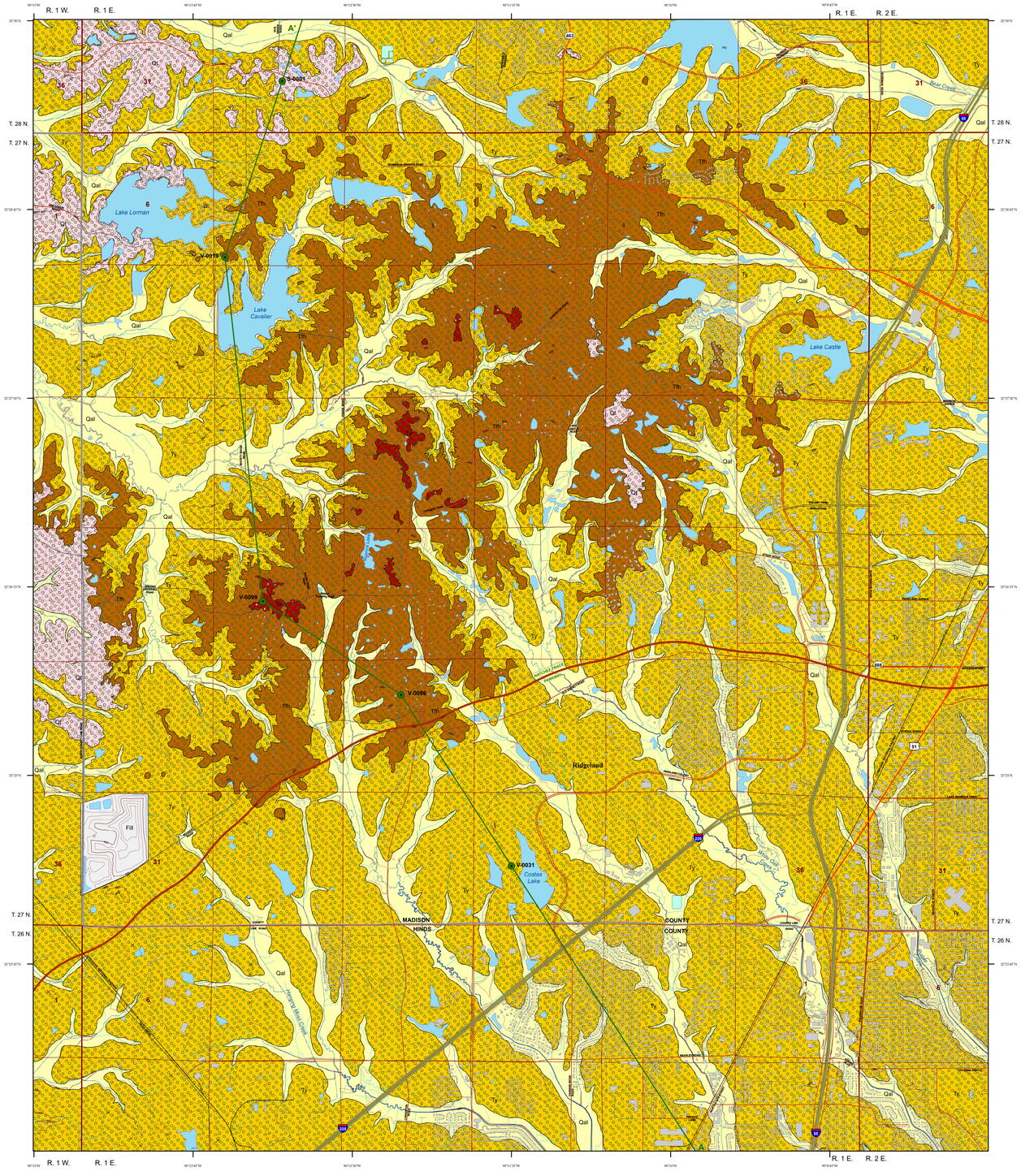
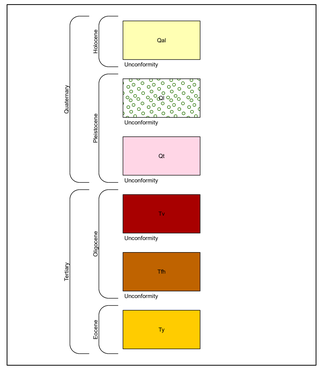
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF GEOLOGY SURFACE MAPPING DIVISION
MISSISSIPPI GEOLOGICAL SURVEY

Prepared in cooperation with
UNITED STATES NATIONAL PARK SERVICE
GEOLOGIC RESOURCES DIVISION

GEOLOGIC MAP OF THE 7.5-MINUTE RIDGELAND QUADRANGLE
OPEN-FILE REPORT 147



Correlation of Map Units



Surface mine pit

V-0099 Drill-hole locality and identification number

Unconformable Contact

A — A' Line of Section

Bare Earth LIDAR Hillshade for the Ridgeland 7.5 Minute Quadrangle.

1:70,000
1 inch = 5,833 feet
1 0.5 0 1 Miles

Descriptions of Map Units

Fill — Fill
Recent fill related to anthropomorphic activities. The Little Dixie environmental landfill in Sec. 31 Township 7N Range 1E is the only area depicted as significant to map.

Alluvium — Qal
Sand, yellow- to brownish-white in color, fine- to coarse-grained, subrounded to rounded, predominately quartzose, silty, clayey; humus lenses common; deposits are heavily loess-derived. Silicified wood common.

Loess
Silt, buff to tan, pale yellow, gray-green in anoxic conditions, weathers brown to red; quartzose to feldspathic. Loess is an Eolian deposit derived from glacial outwash. Loess is typically calcareous with dolomite and calcite; the upper portion of the loess is deeply weathered, leached/noncalcareous, clayey, and is commonly referred to as "brown loam." Loess deposits unconformably blanket the eroded pre-loess topography with substantial local variation in thickness. The loess weathering profile in contact with the underlying calcium-rich montmorillonitic Yazoo Clay can produce quality, naturally-tempered kaolinitic clay mixture ideal for use in brick manufacturing. In places, weathered loess contains secondary deposits of calcareous concretions such as loess dolls, caliche, and caliche filled-root casts. Loess can be locally to sparingly fossiliferous, typically containing tests and steinkerns of pulmonate gastropods and less commonly containing fossils of Pleistocene Vertebrates.

Terrace Deposits — Qt
Sand, yellowish brown to reddish brown, fine- to medium-grained, silty to clayey, locally contains silicified wood and logs, commonly exhibits a coarsening downward fluvial sequence, with rip-up clay clast conglomerate and Ironstone near unconformable basal contact with the Forest Hill Formation. Terrace thickness is variable from approximately 1 foot up to 30 feet.

Vicksburg Group (marine undifferentiated) — Tv
Includes undifferentiated Glendon Limestone and underlying sandy marl of the Mint Springs Formation. The Glendon Limestone is a series of ledges of semi-crystalline limestone interbedded with softer clayey marls reaching a maximum Thickness of about 30 feet. Uppermost Glendon ledges are typically karstic infilled with soil and in some instances a residuum of carbonaceous clay from the Bucatunna Formation. Fossiliferous: Bryozoa, foraminifera, bivalves, *Ostrea vicksburgensis* and *Pecten poulsoni*. Mint Springs; sandy marl, calcareous, fossiliferous. Thickness is less than 5 feet. Thus, it has been grouped with the Glendon Limestone as the Vicksburg Group.

Forest Hill Formation — Th
The Forest Hill Formation is the lowermost unit of the Vicksburg Group. It is represented by terrestrial deltaic deposits and reaches a maximum thickness of approximately 70 feet. Sand, fine-grained, silty, quartzose. Clay, carbonaceous, lignite and silicified wood common. The unconformable contact between the Forest Hill Formation and the underlying Yazoo Clay is a clay-on-clay contact with a distinct 2-foot-thick lignite seam in the Forest Hill Formation (Sec. 28 Township 6N Range 1E) above the contact demonstrated at Society Ridge Church, and demonstrated as 1-foot carbonaceous clay layer above the contact at Rocky Hill Baptist Church (Sec. 20 Township 7N Range 1E). Lignitic plant fossils common along fissile partings in clays. Silicified wood fossils common in sandier beds.

Yazoo Formation (Yazoo Clay) — Ty
Clay, calcareous, montmorillonitic, and blue-green color unweathered, marine shell hash common along partings, locally containing bentonite seams; weathers tan to yellowish-brown with caliche common. Locally fossiliferous: containing beds of the oyster *Pycnodonte trigonalis* and vertebrate remains of the archaeocete whales *Zygorhiza kochii* and *Basilosaurus cetoides*. Selenite locally along joints where clay is framboidally pyritiferous. The Yazoo Clay reaches a maximum thickness of approximately 450 feet. Weathering at outcrop, the Yazoo Clay can pose a high-risk for slope stability, engineering, and construction projects due to its high shrink-swell potential.

Alluvium derived from the Forest Hill Formation and Loess in Section 27 Township 7N Range 1E.

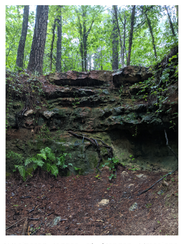
Geologist James Starnes standing in front of a vertical Loess bank in Section 27 Township 7N Range 1E.

A spring head at the unconformable contact between Terrace and Yazoo Clay in Section 10 Township 7N Range 1E.

Typical fissile clays from the Forest Hill Formation in Section 9 Township 7N Range 1E.

Geologist in Training Jonathan Leard pointing to typical Forest Hill Sands on the side of N. Livingston Road in Section 10 Township 7N Range 1E.

A large petrified Log from basal Forest Hill Clays extracted during private road construction in Section 29 Township 7N Range 1E.

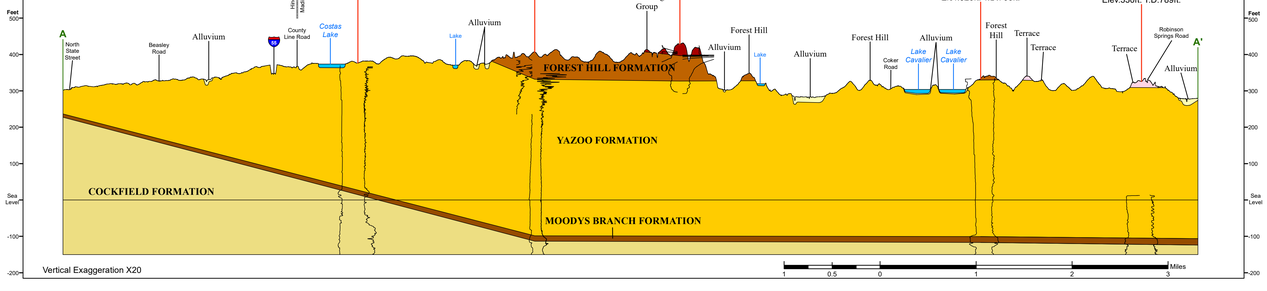


Weathered ledges of Glendon Limestone from the Vicksburg Group at the Tri-County Mountain Bike Association's Ridgeland Trails in Section 9 Township 7N Range 1E.

Unweathered ledges of Glendon Limestone from the Vicksburg Group exposed during home construction in Section 20 Township 7N Range 1E.

Assorted Fossil assemblage including *Pectin* and *Lepidocyclina* at unweathered ledges of Glendon Limestone from the Vicksburg Group exposed during home construction in Section 20 Township 7N Range 1E.

Structural Cross Section of the Ridgeland 7.5 Minute Geologic Quadrangle



Base Map produced by the Mississippi Geological Survey

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Projection: Mercator Auxiliary Sphere; **Datum:** WGS 1984; **Units:** Meter
Declination: January 01, 2021, magnetic north declination in quadrangle center is 1°13' West of true north, changing by 0°6' west per year.
Lidar: Mississippi Department of Environmental Quality (MDEQ), U.S. Army Corps of Engineers (USACE), United States Geological Survey (USGS), Natural Resources Conservation Service(NRCS), Federal Emergency Management Agency(FEMA), National Oceanic and Atmospheric Administration(NOAA), National Park Service (NPS), and Tennessee Valley Authority (TVA). Project span 2005-2017.
Hydrography: Lidar derived; National Hydrography Dataset (NHD) 2020
Contours: Lidar derived
Roads: Mississippi Department of Transportation (MDOT) 2018
PLSS Boundaries: Mississippi Automated Resource Information System (MARIS) 2020
Building Footprints: Microsoft 2019
Surface Mines: MDEQ Office of Geology - Mining and Reclamation Division
Boreholes: MDEQ Office of Geology - Environmental Geology Division

Reference Scale: 1:24,000
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

Contour Interval: 20 Feet

This geologic map was funded by the United States National Park Service, Geologic Resources Division.

MDEQ-GEOLOGY Geographic Information Systems: Daniel W. Morse
MDEQ-GEOLOGY Drillers: Archie Mckenzie and Trey Magee
MDEQ-GEOLOGY Geophysical Logging: Andrew Newcomb and Paul Parrish

Geologic maps are only a guide to current understanding and do not eliminate the need for detailed investigations of specific sites for specific purposes. The views and conclusions contained in this Open-File Report are those of the geologists and should not be interpreted as representing the official policies, either expressed or implied, of the State of Mississippi or of the United States Government.

GEOLOGIC MAP of the RIDGELAND QUADRANGLE
Madison and Hinds Counties, Mississippi
2021

Geology by

Jonathan R. Leard, GIT, James E. Starnes, RPG, and David E. Thompson, RPG

Dedicated to

William H. Moore, State Geologist

Adjoining 7.5' Quadrangles

Flora	Charlton	Canton
Pocahontas	Ridgeland	Madison
Clinton	Jackson	Jackson SE