

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: World Magnetic Model, January 1, 2022, estimated Magnetic North declination in quadrangle center (32°18'45" -90°18'45") area is 1°13' west of True North ± 0°21'. Annual rate of declination change is approximately 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

90°21'15"W





90°22'30"W







90°20'W



2021 Geology by Jonathan R. Leard, RPG and James E. Starnes, RPG Copyright © 2021 Mississippi Department of Environmental Quality, Office of Geology 32°21'15"N

90°18'45"W Reference Scale: 1:24,000 Kilometers

Contour Interval: 20 Feet

**GEOLOGIC MAP of the CLINTON QUADRANGLE** Hinds County, Mississippi



90°17'30''W

This geologic map was funded by the United States National Park Service, Geologic Resources Division. Geology field checked in 2020 and 2021 using LIDAR, Projection: Mercator Auxiliary Sphere; Datum: WGS 1984, Horizontal Units: Meter, Contour interval 20 feet. MDEQ-GEOLOGY State Geologist: David T. Dockery, III

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

90°16'15"W

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.



Adjoining 7.5' Quadrangles rownsville Pocahontas Ridgeland

Byram

Terry

**Correlation of Map Units** 



L-0003 \_\_\_\_\_

A — A'

Surface mine pit

Bare Earth LIDAR Hillshade for the Clinton 7.5 Minute Quadrangle.

Mississippi Geological Survey Hinds Co. Bulletin AF-50

Sec.23-T.5N.-R.2W.

Road

**CATAHOULA** FORMATION

Mississippi Geological Surve

Hinds Co. Bulletin AF-53

Sec.24-T.5N.-R.2W.

Elev.345ft. T.D.404ft.

Elev.330ft. T.D.400f

Mississippi Geological Survey

Hugh B. Gillespie, Jr. - Hinds Co. Bulletin AF-52

Sec.22-T.5N.-R.2W.

Elev.320ft. T.D.485ft.

Sea Leve

Alluvium

Drill-hole locality and identification number

Unconformable Contact

Line of Section

Recent fill related to anthropomorphic extensive land development activity. Exclusively mapped are the operations encompassed by the Faircloth Rubbish Landfill in Section 8 Township 5N. Range 1W.

lignite and silicified wood common. Lignitic plant fossils common along fissile partings in clays. The Forest Hill Formation unconformably overlies the Yazoo Formation. The Forest Hill Formation is the lowermost unit of the Vicksburg Group and is differentiated because it is a terrestrial deltaic deposit. The type locality is near Forest Hill School in Section 23 Township 5N. Range 1W. Yazoo Formation (Yazoo Clay) 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. Limestone ledges. The Yazoo Clay reaches a thickness of approximately 515 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.

**Forest Hill Formation** Sand, fine-grained, silty, quartzose; Clay, carbonaceous, laminated,

websteri.

M-0148 Mississippi Office of Geology

Faircloth Landfill - Terracon TH #B-05 Sec.8-T.5N.-R.1W.

Elev.410ft. T.D.250ft.

McRaven

Road

McRaven Road

M-0046

Herndon Well & Supply Inc.

Deviney Equipment

Sec.7-T.5N.-R.1W.

Elev.355ft. T.D.904ft.

Alluvium

**FOREST HILL** FORMATION

**YAZOO FORMATION** 

**COCKFIELD FORMATION** 

COOK MOUNTAIN FORMATION

**KOSCIUSKO FORMATION** 

Vicksburg Group Includes the undifferentiated associated marine units in descending order: Bucatunna Formation, Byram Formation, Glendon Formation, and Mint Springs Formation. Bucatunna Formation: dark-brown to gray carbonaceous clays, silty to fine sandy, averages 45 feet but up to 60 feet in total thickness in the mapping area; Byram Formation: sandy to clayey marl, glauconitic, fossiliferous, up to 12 feet thick; Glendon Formation: Semi-Crystalline limestone interbedded with softer clayey marls, reaches a maximum thickness of about 30 feet in the mapping area. Represents the marine high-stand of the Oligocene Vicksburg Seas. Glendon Limestone outcrops in Clinton area are plentiful. Notably along the Natchez Trace Parkway in a creek in Section 25 Township 6N. Range 2W. where the outcrops form the basis of the habitat for a population of the Webster's salamander Plethodon

Catahoula Formation Deltaic sands, silts, and clays; Sand, red to khaki, fine-to coarse grained, predominately quartzose with polished black chert grains. Gravel, pea sized, predominately quartz with small amounts of chert. Clay, Purple, pink, white. Kaolinitic. Ironstone common where sands overlie clays. Sands and silts indurate where exposed. Represented as a 120-foot channel incised through the Vicksburg Group and slightly the Forest Hill Formation in Sections 5, 6, 7, and 8 Township 5N. Range 1W. at McRaven Hill. Channelization removing the Vicksburg Group demonstrated in the subsurface in Hinds County Bulletin test holes AF-50, AF-51, and AF-52. Thickness up to 280 feet.

Pleistocene Vertebrates. **Pre-loess Terrace Deposits** Pleistocene ancestral Mississippi River terraces deposited prior to Pleistocene loessification. Sand, yellow, orange, red, pink, fine to coarse-grained, predominately quartzose, cross-bedded to massive; Graveliferous, pea to large cobble size with local occurrences of icerafted, faceted sandstone and chert boulders possible, gravels are predominantly chert; Clay, pink to white, occurring as discontinuous lenses and as rip-up clasts up to boulder size. A Pre-loess Terrace Deposit is mapped with an unconformable base approximately 320 ft msl in Sections 35 and 36 Townships 6N. Range 2W. A Pre-loess Terrace Deposit is mapped with an unconformable base approximately 360 ft msl in Sections 29, 30, 31, and 32 Township 6N. Range 1W.

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 topography with substantial local variation in thickness. The loess weathering profile when 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

Alluvium 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. Streams on clays will have shallow, wide alluvial plains while streams on sands or soluble rock will incise creating steep, narrow alluvial plains. Can contain Pleistocene vertebrate fossils.

**Descriptions of Map Units** 

# Fill



Ledge of indurated Catahoula Sandstone exposed along a HWY 18 road cut in Section 13 Township 5N. Range 2W. Photographed on October 22, 2021.



Early Oligocene invertebrate fossils dominated by Pecten byramensis and Lepidocyclina supra weathering from interbedded marl of the Glendon Formation freshly exposed in a rootball along a creek on the Natchez Trace Parkway in Section 25 Township 6N. Range 1W. Photographed on February 24, 2021.



**GEOLOGIC MAP OF THE 7.5-MINUTE** 

**CLINTON QUADRANGLE** 

**OPEN-FILE REPORT 312** 

Forest Hill sand. Left to right and top t bottom: from Vx to F. H. is weathered Glendon limestone and marl; from F. H. to Y. is Forest Hill sand, silt, clay, and lignite; and from Y. to 77 ft. is uppermost Yazoo clay Note two beds of lignite (dark colored) in Forest Hill. Perry Nations photo 1964.





Glendon Limestone in Section 15 Township 5N. Range 1W. Photographed on October

24, 2021.

