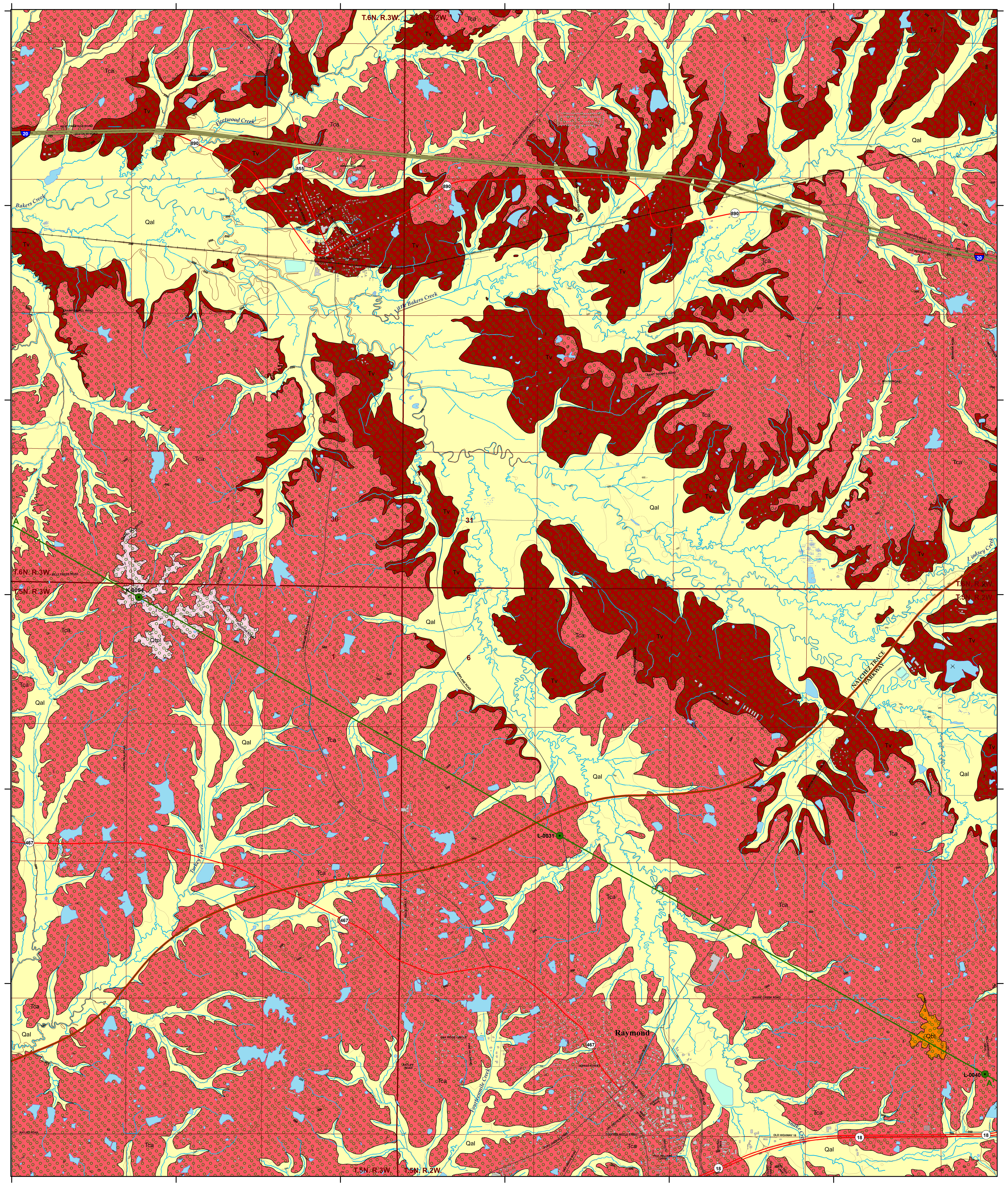
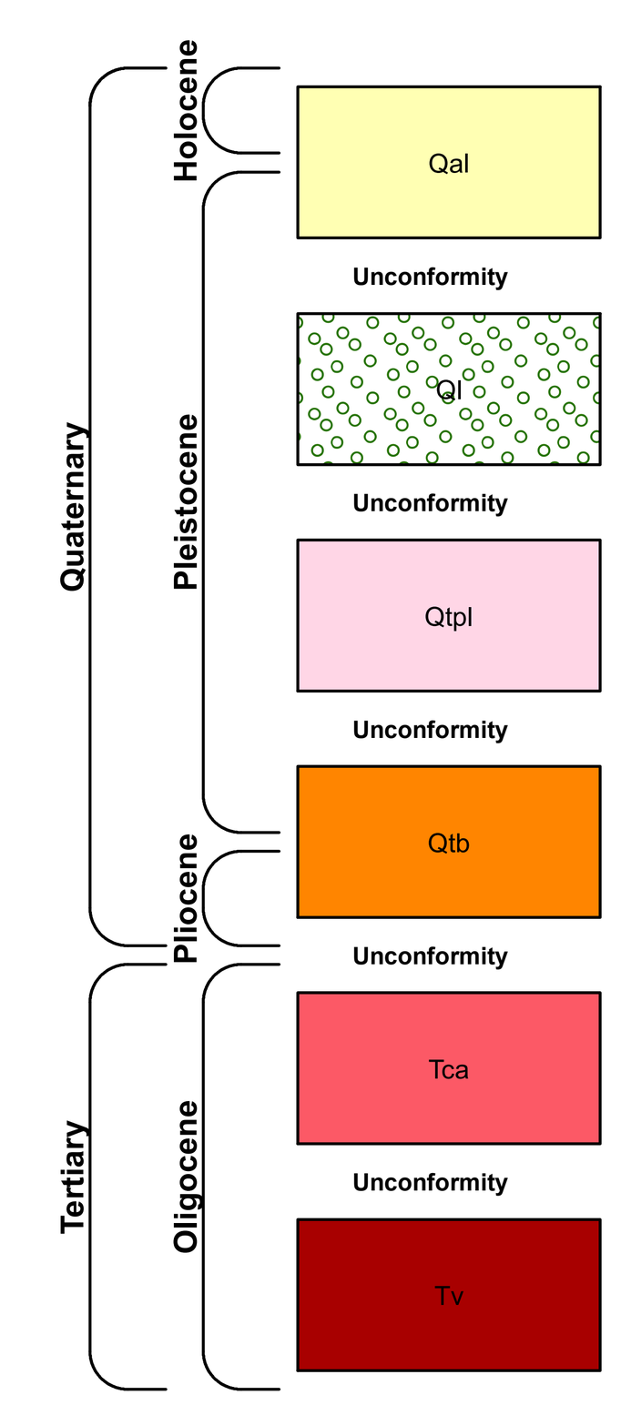
Prepared in cooperation with
UNITED STATES NATIONAL PARK SERVICE
GEOLOGIC RESOURCES DIVISION



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 Raymond 7.5 Minute Quadrangle.

Descriptions of Map Units

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

Loess (Ql)
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 Pleistocene Vertebrates.

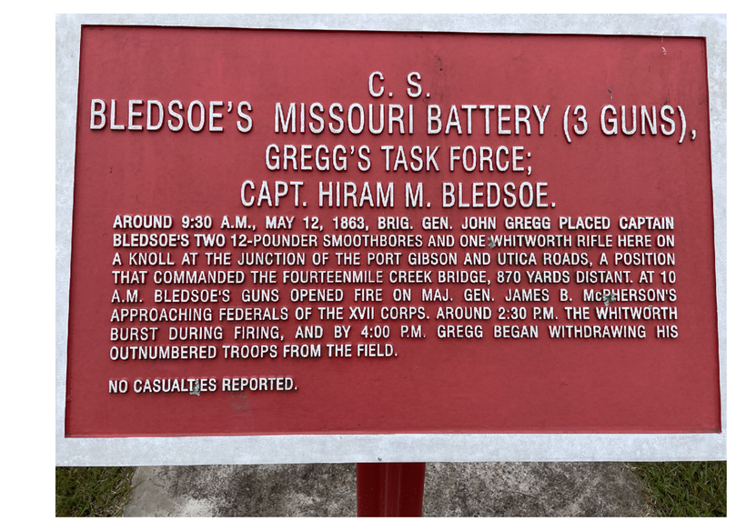
Pre-loess Terrace Deposits (Qtpl)
Pleistocene ancestral Mississippi River terraces deposited prior to Pleistocene loessification. Sand, yellow, orange, red, pink, fine to coarse-grained, predominately quartzose, cross-bedded to massive; Graveliferous, pea to large cobble size with local occurrences of ice-rafted, 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.

Brookhaven Terrace (Qtbt)
Plio-Pleistocene ancestral Tennessee-Ohio River System terrace deposit. Sand, yellow orange, purple, red, pink, fine- to coarse-grained, predominately quartzose, cross-bedded to massive; graveliferous, pea to cobble size typically not exceeding 3 inches in length, predominately chert with lesser amounts of quartz, metaquartzite, agate, and sandstone; Clay, pink to white, generally occurring as discontinuous lenses and as basal rip-up clasts. Base is unconformable at approximately 400 ft. above msl. The northern extent of this terrace deposit is encountered capping the hills in Sections 15, 22, and 23 Township 5N. Range 2W.; More extensive exploitation of this terrace deposit for aggregate is evident just to the south of the mapping area.

Catahoula Formation (Tca)
Deltaic sands, silts, and clays; Sand, red to khaki, fine-to coarse grained, predominately quartzose with polished black chert grains. Gravel, pea sized, highly polished, immature black chert and quartz. Clay, purple, pink, white, kaolinitic. Ironstone common where sands overlie clays. Sands and silts indurate where exposed.

Vicksburg Group (Tv)
Bucatunna Formation – dark-gray carbonaceous clays; Bakers Creek flows on Bucatunna Formation, exposing it variably along its banks.

A Whitworth Breechloading Rifle replica on the Loess Knoll that commanded the Fourteenmile Creek Bridge. During the Civil War, Gen. John Gregg stationed Cptn. Bledsoe on this knoll to fire on Maj. Gen. James B. McPherson's Federal Troops at 9:30 a.m. on May 12, 1863. Photographed on November 18, 2021.



Historical marker on the Loess Knoll that commanded the Fourteenmile Creek Bridge. During the Civil War, Gen. John Gregg stationed Cptn. Bledsoe on this knoll to fire on Maj. Gen. James B. McPherson's Federal Troops at 9:30 a.m. on May 12, 1863. Photographed on November 18, 2021.

Silty Cathoula clay exposed on north side of U.S. Hwy 80 (now U.S. Interstate 20) Section 22 Township 6N. Range 2W. Photographed March 5, 1965. From *Bulletin 105: Hinds County Geology*.

White, kaolinitic Cathoula sandstone exposed on north side of U.S. Hwy 80 (now U.S. Interstate 20) Section 23 Township 6N. Range 2W. Photographed March 5, 1965. From *Bulletin 105: Hinds County Geology*.

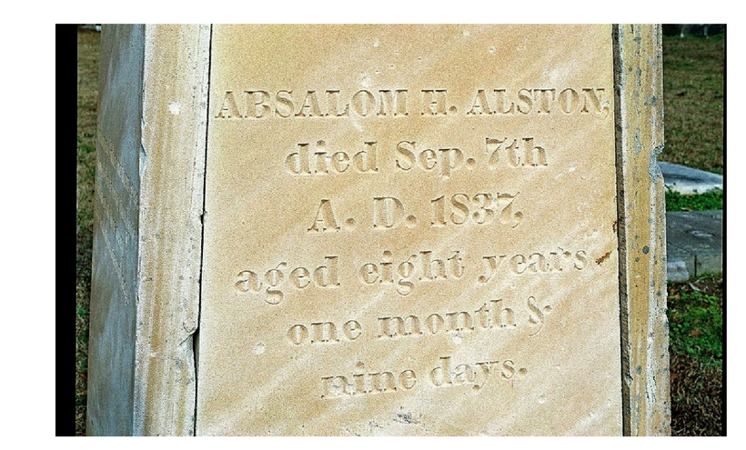
Cavett Taff and his son Phillip examining a Catahoula sandstone ledge at the old state stone quarry at Mississippi Springs east of Raymond, where stone was quarried for the Old Capitol Building in Jackson, Mississippi. This quarry was destroyed during an expansion of Interstate 20. Photographed on September 20, 2007.

James Starnes behind box-grave monuments in the old Raymond Cemetery made of Catahoula sandstone quarried at Mississippi Springs. Photographed on December 19, 2006.

Pyrite weathering and crossbedding in box-grave monuments in the old Raymond Cemetery made of Catahoula sandstone quarried at Mississippi Springs. Photographed on November 18, 2021.

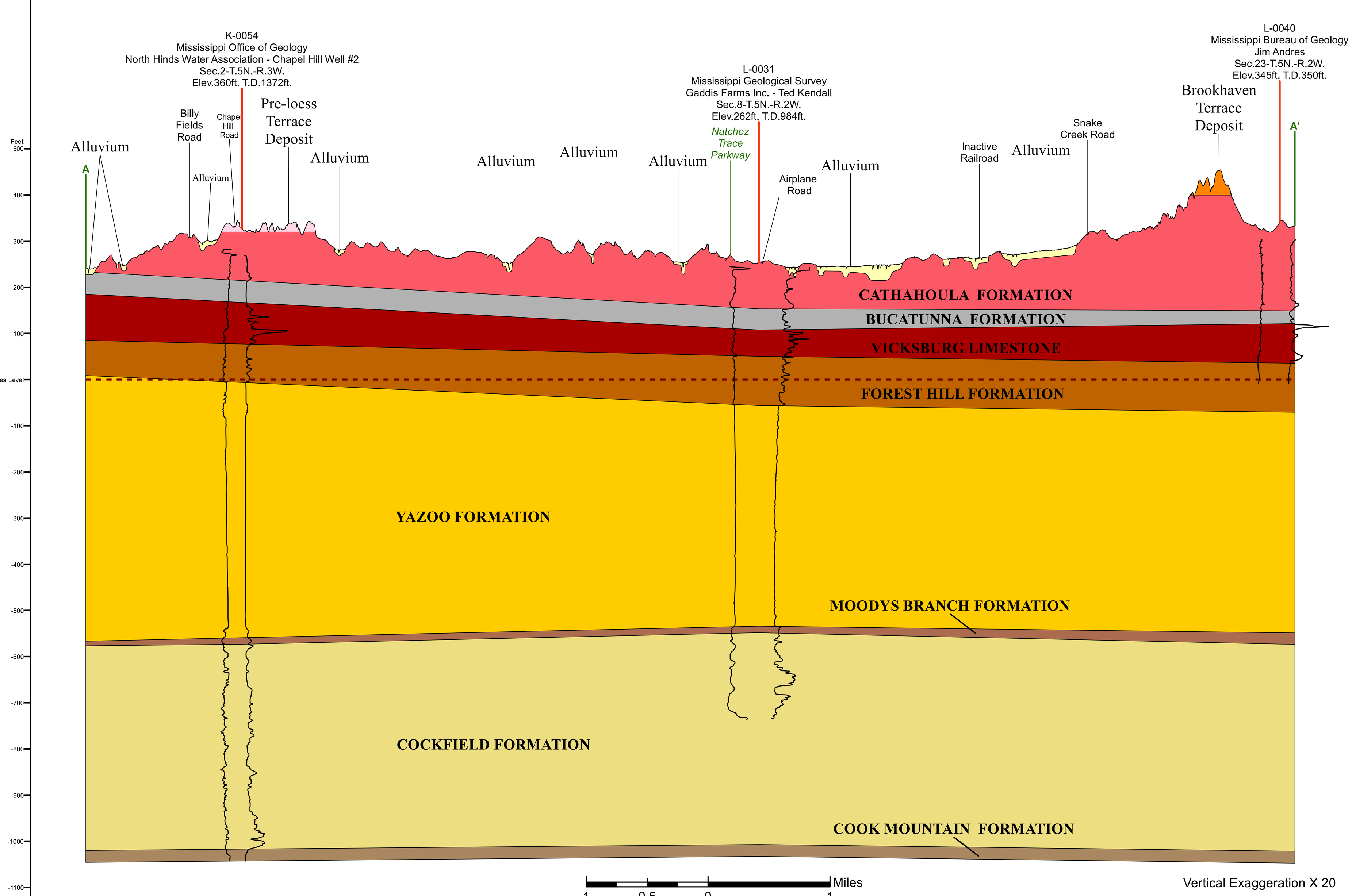
Catahoula sandstone slab marking the grave of Sarah Ann Alston, who died June 5, 1838, at the age of one year, 8 months, and 18 days. Photographed on September 18, 2007.

Alston family monuments (1837-1838) in the old Raymond Cemetery made of Catahoula sandstone quarried at Mississippi Springs. Photographed on December 19, 2006.



Alston family monuments (1837) in the old Raymond Cemetery made of Catahoula sandstone quarried at Mississippi Springs, where stone was quarried for the Old Capitol Building in Jackson, Mississippi. Photographed on December 19, 2006.

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



Catahoula sandstone chimney of the Porter House built around 1830 and moved to Raymond, Mississippi, in 2004. Photographed on September 20, 2004.

Catahoula sandstone steps and facing/foundation stones in a building on the Raymond town square. Photographed on September 20, 2007.

Weathered Bucatunna Clay exposed along the floor of a Loess borrow pit in Section 19 Township 6N. Range 2W. Photographed on October 22, 2021.

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°26'15") area is 1°8' 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
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

GEOLOGIC MAP of the RAYMOND QUADRANGLE

Hinds County, Mississippi

2021

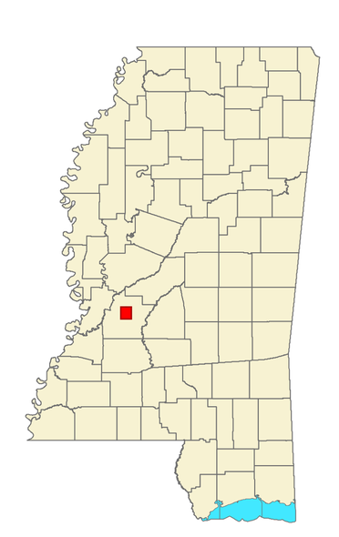
Geology by

Jonathan R. Leard, RPG and James E. Starnes, RPG

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

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

Queens Hill Lake	Brownsville	Pocahontas
Edwards	Raymond	Clinton
Learned	Terry NW	New Byram