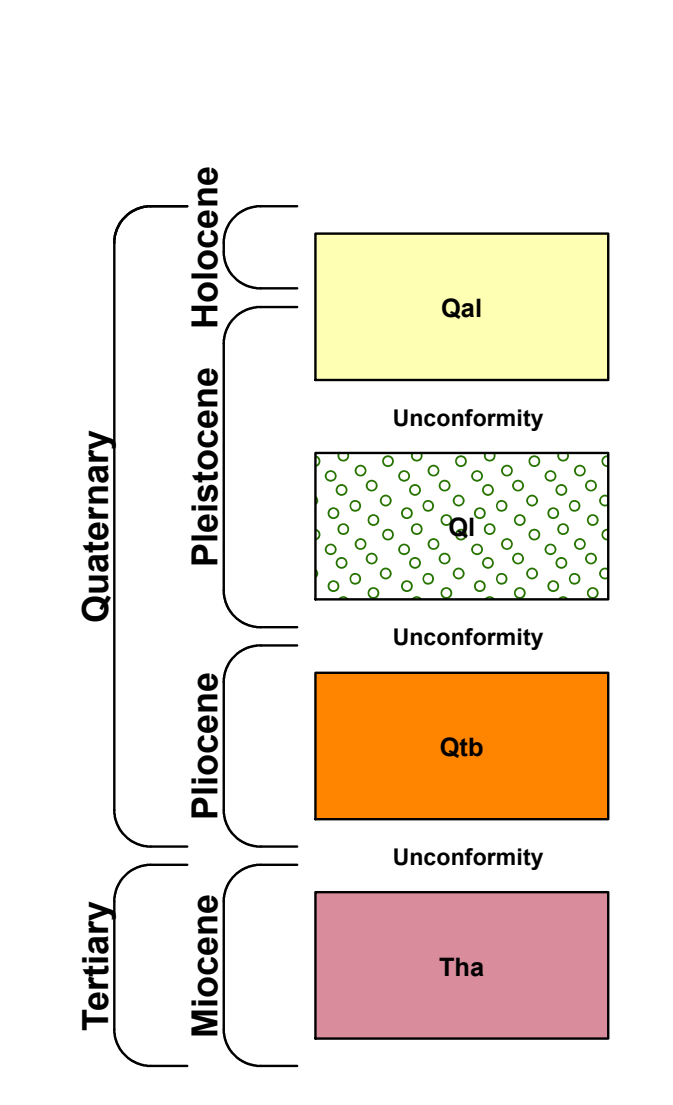


Correlation of Map Units



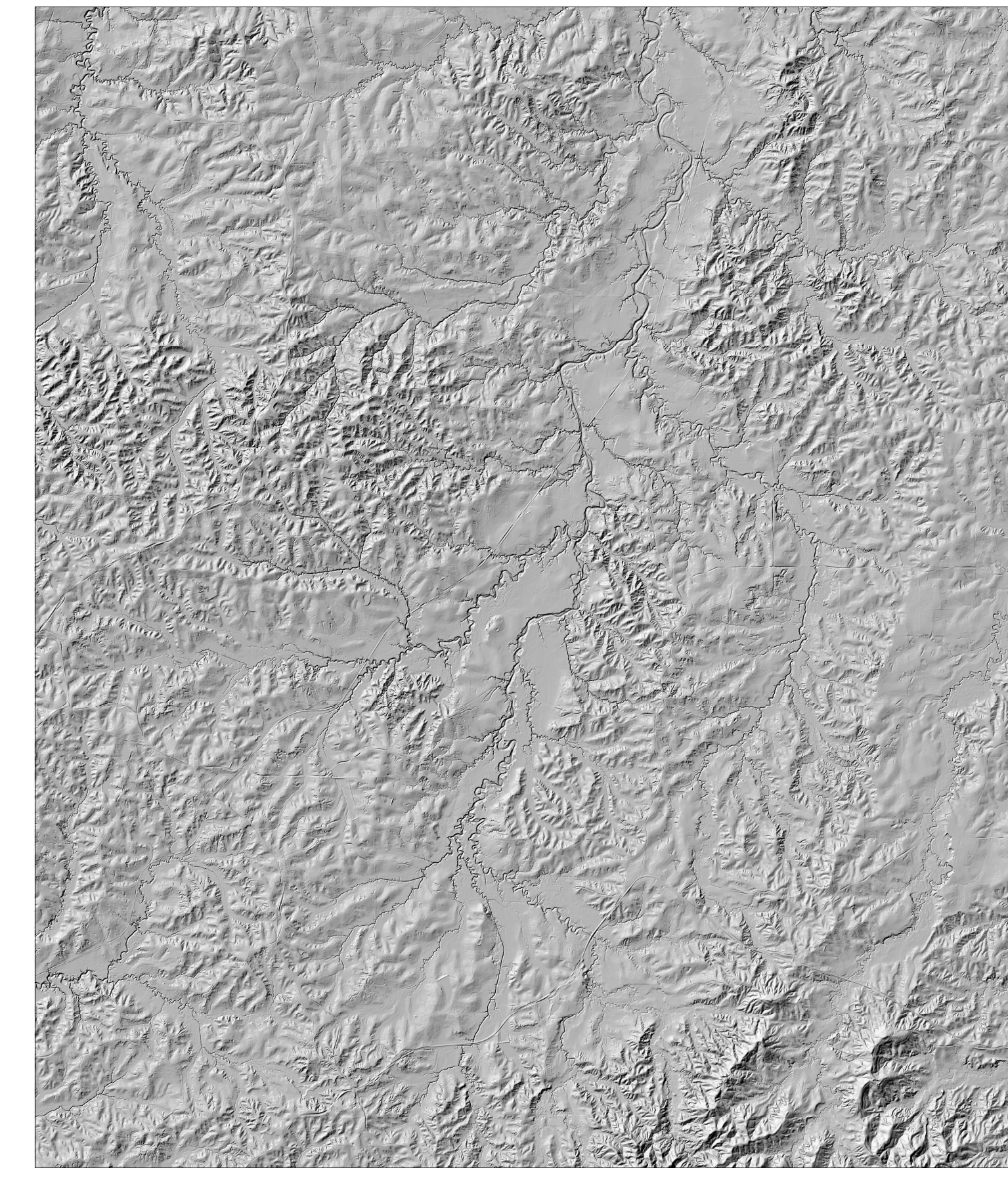
Descriptions of Map Units

**Alluvium**  
Sand, medium- to brownish-white, very fine- to very coarse-grained, subrounded to rounded, predominately quartzose, silty, clayey; commonly containing organic matter; heavily less derived with occurrences of gravels eroded from terrace deposits.

**Loess**  
Silty, buff to tan, pale yellow, red, gray-green where in anoxic conditions; quartzose to feldspathic. Loess is an eolian deposit derived from glacial outwash. Loess is typically calcareous with dolomite and calcite; however, the upper portion of the loess is highly weathered, leached/non-calcareous, clayey, and has been referred to as "brown loam." Loess deposits unconformably blanket the Pre-loess topography with substantial local variation in thickness. In places, weathered loess contains secondary deposits of small calcareous concretions of caliche locally referred to as loess dolls. Loess can be locally and sparingly fossiliferous, commonly containing tests of stinkens of pulmonate gastropods and less commonly containing fossils of Pleistocene Vertebrates.

**Brookhaven Terrace**  
Ancestral Tennessee-Ohio River System terrace deposit. Sand, yellow, orange, purple red, pink, fine- to coarse-grained, predominantly quartzose, cross-bedded to massive; graveliferous, pea to cobble size (no more than 3 inches) predominately chert with lesser amounts of vein quartz, metagranite, agate, and sandstone; clay pink to white, generally occurring as discontinuous lenses in the upper portions and as rip-up clasts in basal portions. Conglomeratic ironstone ledges are common in the graveliferous sands at the base of the formation, which overlies the Hattiesburg Formation unconformably. Now severely eroded, the terrace once covered much of the area up to approximately 500 feet MSL. The queta, Blue Hill, is a dominant erosional capped by the Brookhaven Terrace.

**Hattiesburg Formation**  
Clay, green, gray, brown, weathers white to brown, silty to sandy, locally lignitic, sand, gray, pale yellow to white, fine- to coarse-grained, cross-bedded to massive with rare thinly bedded pea gravels (gravels consist of black chert and milky quartz, are highly polished, sub-angular to well rounded), often indurated to sandstones and siltstones at surface, predominantly quartzose with lesser amounts of chert, metagranite, mica, and heavy minerals, slightly glauconitic in places, silicified and coalified wood common. The base of the Hattiesburg Formation is designated at the base of a sand unit of regional extent that occurs at the approximate horizon of the base of the Fleming Formation in Louisiana and the middle-Miocene Amos Sand in Alabama.



Bare Earth LIDAR Hillshade for the Red Lick 7.5 Minute Quadrangle.

- ⊗ Surface mine pit
- L-0022 Drill-hole locality and identification number
- Unconformable Contact
- A—A' Line of Section



The State historical marker for Brick Church, now Red Lick Baptist Church. Section 55 Township 10N, Range 2E. Photographed on March 8, 2022.



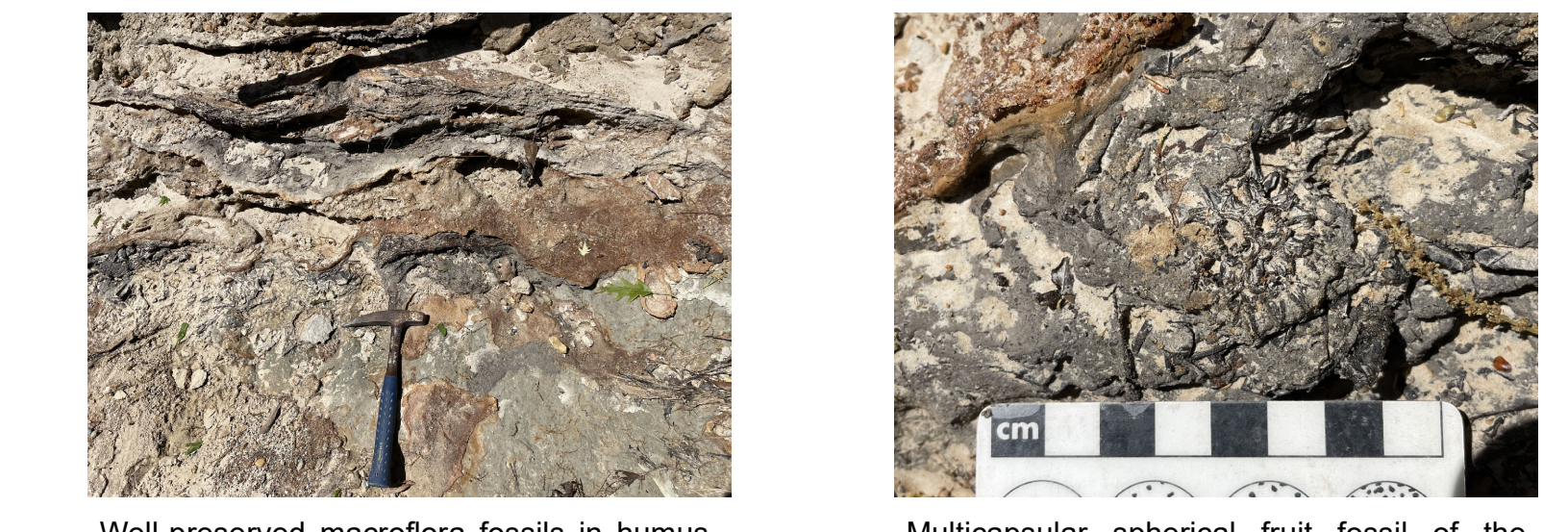
The historic red brick building of Red Lick Baptist Church (originally Red Lick Presbyterian Church), built from locally crafted brick in 1846. Section 55 Township 10N, Range 2E. Photographed on March 8, 2022.



A sand and gravel choked tributary of Willis Creek and outcrop of loess and loess-derived stream alluvium exposed along the stream channel wall. Section 26 Township 10N, Range 3E. Photographed on March 8, 2022.



Alluvial contact with Hattiesburg clays marked by a rock hammer exposed near the bridge over a tributary of Willis Creek. Section 26 Township 10N, Range 3E. Photographed on March 8, 2022.



Well-preserved macroflora fossils in humus-rich Pleistocene alluvium over Hattiesburg clay exposed near the bridge over a tributary of Willis Creek. Section 26 Township 10N, Range 3E. Photographed on March 8, 2022.



Multicapsular spherical fruit fossil of the Sweetgum tree *Liquidambar* sp. from well-preserved macroflora fossils in humus-rich Pleistocene alluvium over Hattiesburg clay exposed near the bridge over a tributary of Willis Creek. Section 26 Township 10N, Range 3E. Photographed on March 8, 2022.



Caliche residuum atop narrow joint-sets in loess exposed at the summit of Blue Hill. Section 15 Township 9N, Range 3E. Photographed on March 8, 2022.



Abandoned and heavily vegetated highwall of a gravel pit in the Brookhaven Terrace at the summit of Blue Hill. Section 15 Township 9N, Range 3E. Photographed on March 8, 2022.

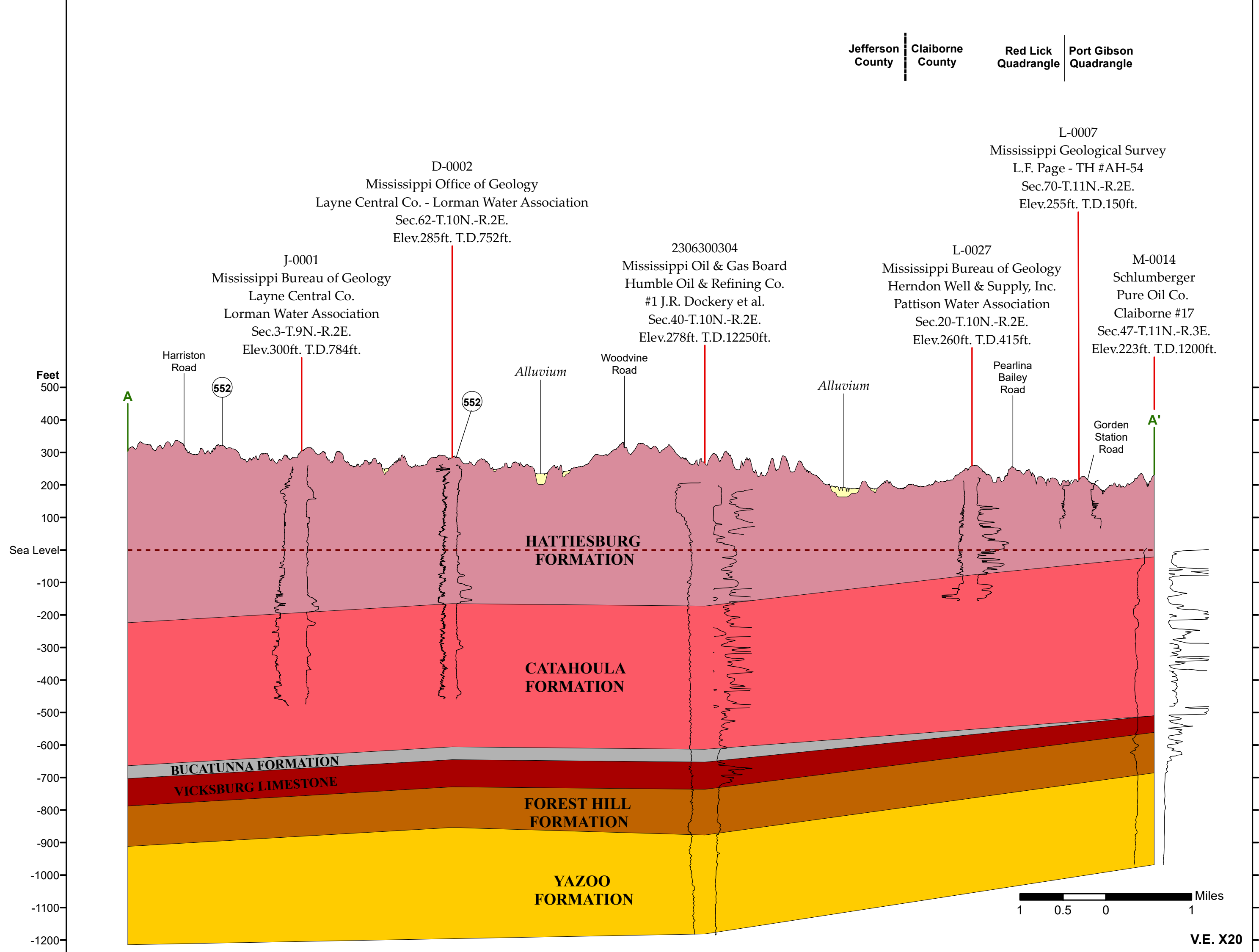


Looking east from atop the outcrop of the Brookhaven Terrace at Blue Hill, back towards the summits of other eroded quetas of the Brookhaven Terrace across the lowlands of the Hattiesburg Formation. Section 15 Township 9N, Range 3E. Photographed on March 8, 2022.



Conglomeratic ironstone of the Brookhaven Terrace exposed in a road ditch near the summit of Blue Hill. Section 15 Township 9N, Range 3E. Photographed on March 8, 2022.

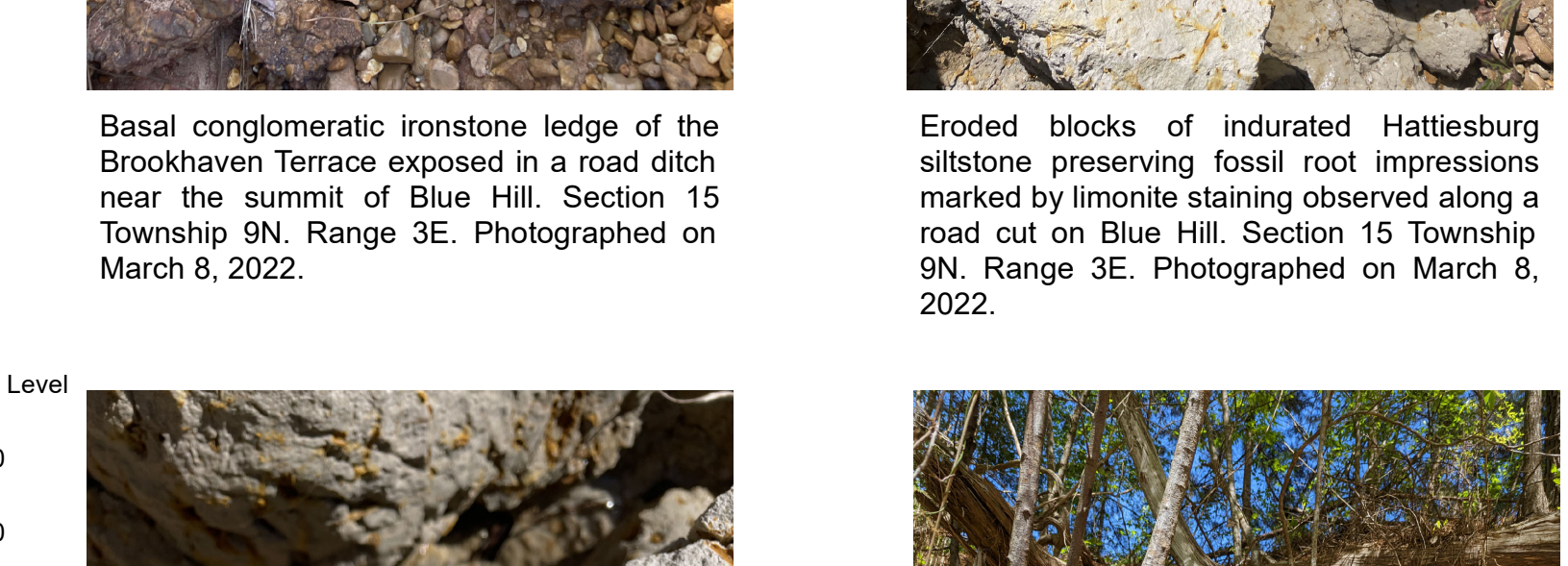
Structural Cross-Section of the Red Lick 7.5-Minute Geologic Quadrangle



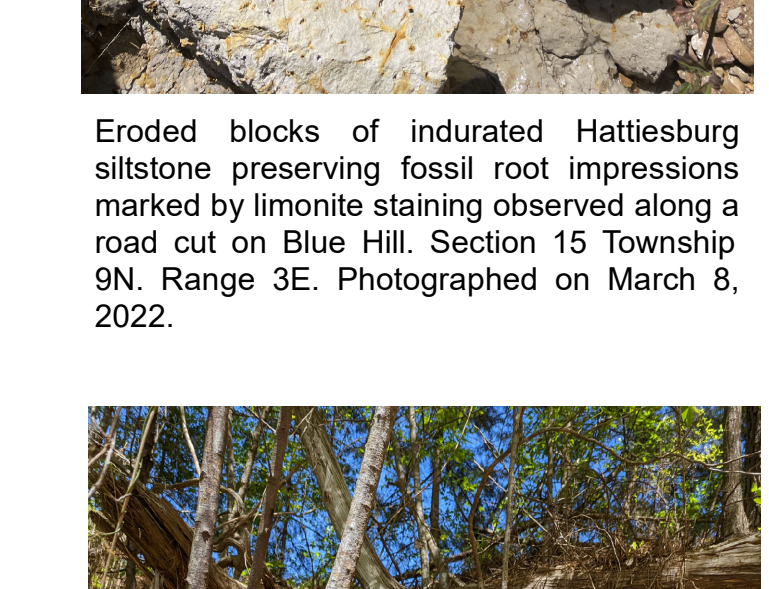
Basal conglomeratic ironstone ledge of the Brookhaven Terrace exposed in a road ditch near the summit of Blue Hill. Section 15 Township 9N, Range 3E. Photographed on March 8, 2022.



Eroded blocks of indurated Hattiesburg siltstone preserving fossil root impressions marked by limonite staining observed along a road cut on Blue Hill. Section 15 Township 9N, Range 3E. Photographed on March 8, 2022.



Fossil root impressions in eroded blocks of indurated Hattiesburg siltstone marked by limonite staining observed along a road cut on Blue Hill. Section 15 Township 9N, Range 3E. Photographed on March 8, 2022.



Indurated Hattiesburg sandstone exposed along a road cut. Section 12 Township 10N, Range 3E. Photographed on March 8, 2022.

Base Map produced by the Mississippi Geological Survey  
Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere  
Projection: Mercator Auxiliary Sphere; Datum: WGS 1984, Spheroid: GRS 1980  
Declination: World Magnetic Model, January 1, 2022 estimated Magnetic North declination in RED LICK quadrangle center (33° 46' 45" N, 90° 54' 15" W) area is 0° 46' west of True North @ 0° 21'. Annual rate of declination change is approximately 0° west per year.  
Lidar: Mississippi Department of Environmental Quality (MDEQ), U.S. Army Corps of Engineers (USACE), United States Geological Survey (USGS), National 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 2009-2021.  
Hydrography: Lidar derived; National Hydrography Dataset (NHD) 2020  
Contours: Lidar derived  
Roads: Mississippi Department of Transportation (MDOT) 2018  
PLUS boundaries: Mississippi Automated Resource Information System (MARIS) 2020  
Building Footprints: Microsoft 2019  
Surface Mines: MDEQ Office of Geology - Mining and Reclamation Division  
Keywords: MDEQ Office of Geology - Environmental Geology Division; MS Oil and Gas Board

GEOLOGIC MAP of the RED LICK QUADRANGLE  
Jefferson and Claiborne Counties, Mississippi

2022  
Geology by  
James E. Starnes, RPG and Jonathan R. Leard, RPG

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This geologic map was funded in part by the U.S. Geological Survey, National Cooperative Geologic Mapping Program, under STATEMAP award number G21AC10822. Geology field checked in 2021 and 2022 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 Drivers: Archie McKenzie and Trey Magee  
MDEQ-GEOLOGY Geophysical Logging: Andrew Newcomb and Paul Parrish  
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