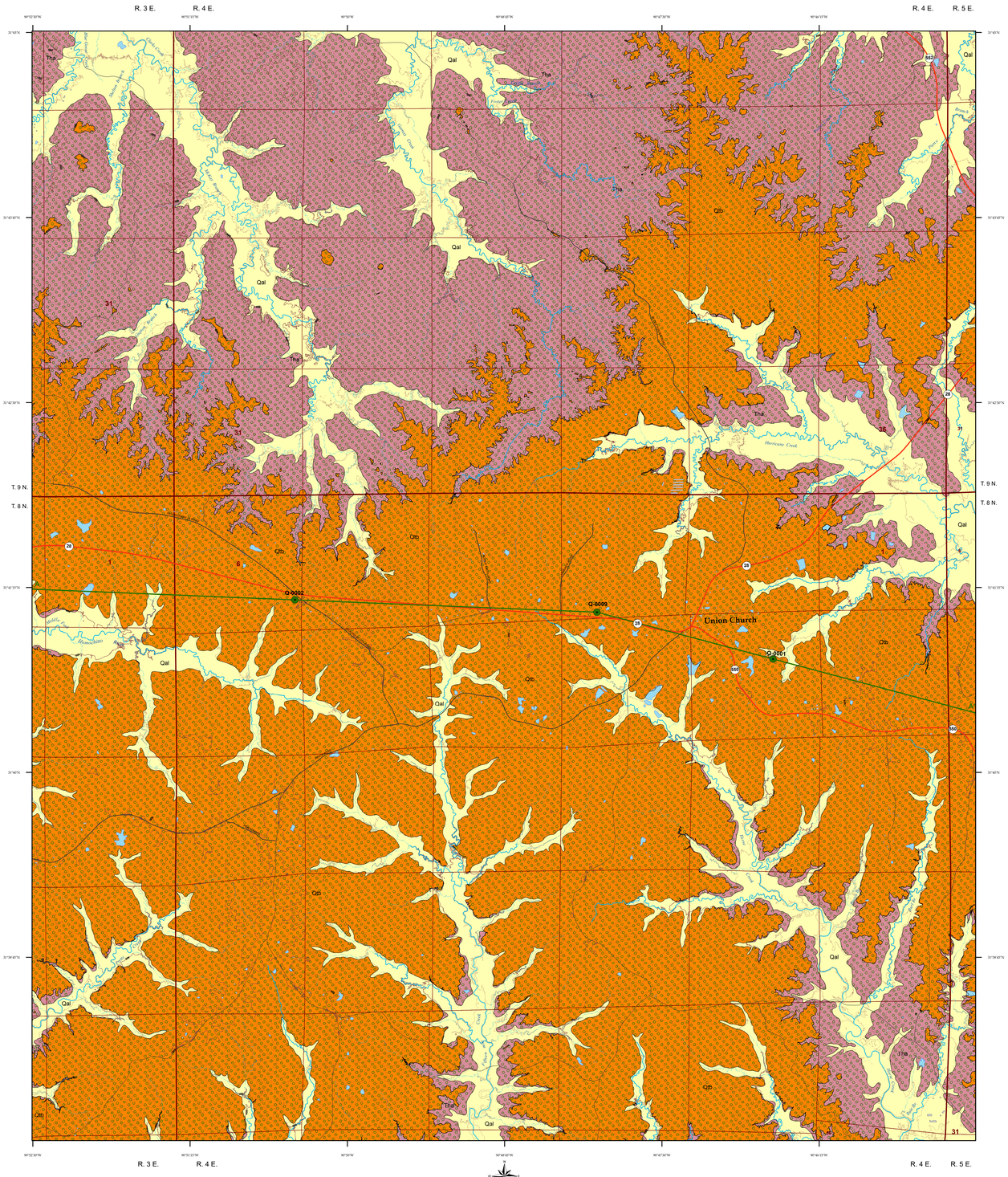
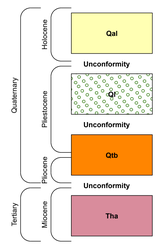
MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF GEOLOGY SURFACE MAPPING DIVISION
MISSISSIPPI GEOLOGICAL SURVEY

Prepared in cooperation with
THE UNITED STATES GEOLOGICAL SURVEY
NATIONAL GEOLOGIC MAPPING PROGRAM

GEOLOGIC MAP OF THE 7.5-MINUTE UNION CHURCH QUADRANGLE OPEN-FILE REPORT 299



Correlation of Map Units



Q-0001 — Drill-hole locality and identification number

Unconformable Contact

A —— A' Line of Section

Bare Earth Hillshade derived from NRCS/MDEQ/3DEP 2016 2017 : South West Mississippi project

1:60,000
1 inch = 5,000 feet
0 0.5 1 2 Miles

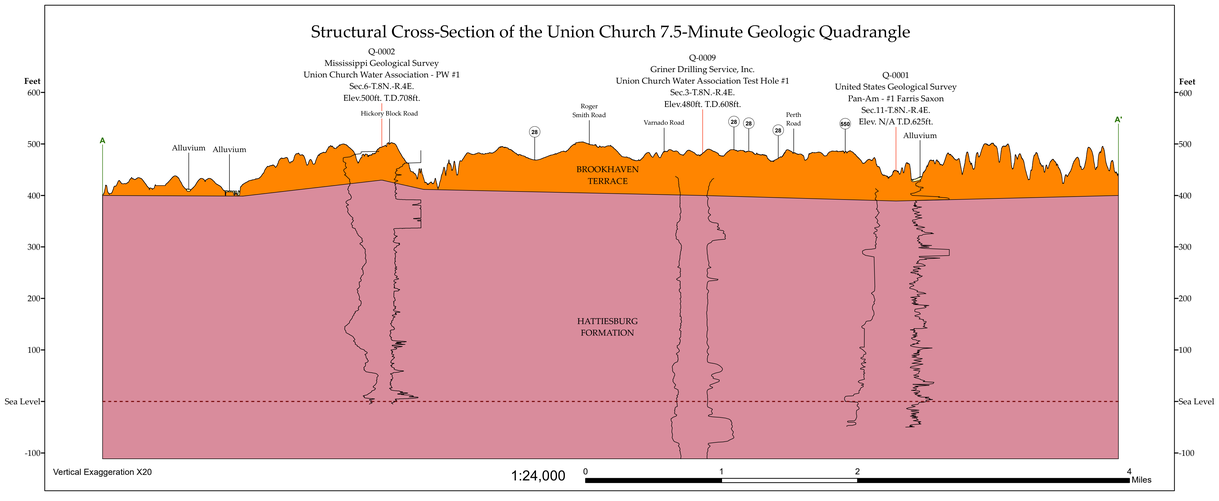
Descriptions of Map Units

ALLUVIUM Qal
Sand, medium- to brownish-white, very fine- to very coarse-grained, subrounded to rounded, predominately quartzose, silty, clayey; commonly contains organic matter; heavily loess 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/noncalcareous, 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 steinkerns of pulmonate gastropods and less commonly containing fossils of Pleistocene Vertebrates.

BROOKHAVEN TERRACE Qtb
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, metaquartzite, 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. At approximately 500 feet MSL, the formation fines to a brown to reddish-brown silt loam that often contains a hardpan which consists of a mineralized horizon of iron-manganese buckshot nodules.

HATTIESBURG FORMATION Tha
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, metaquartzite, 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.



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: June 01, 2020, magnetic north declination in quadrangle center is 0°42' 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

GEOLOGIC MAP of the UNION CHURCH QUADRANGLE

Jefferson County, Mississippi

2020

Geology by

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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