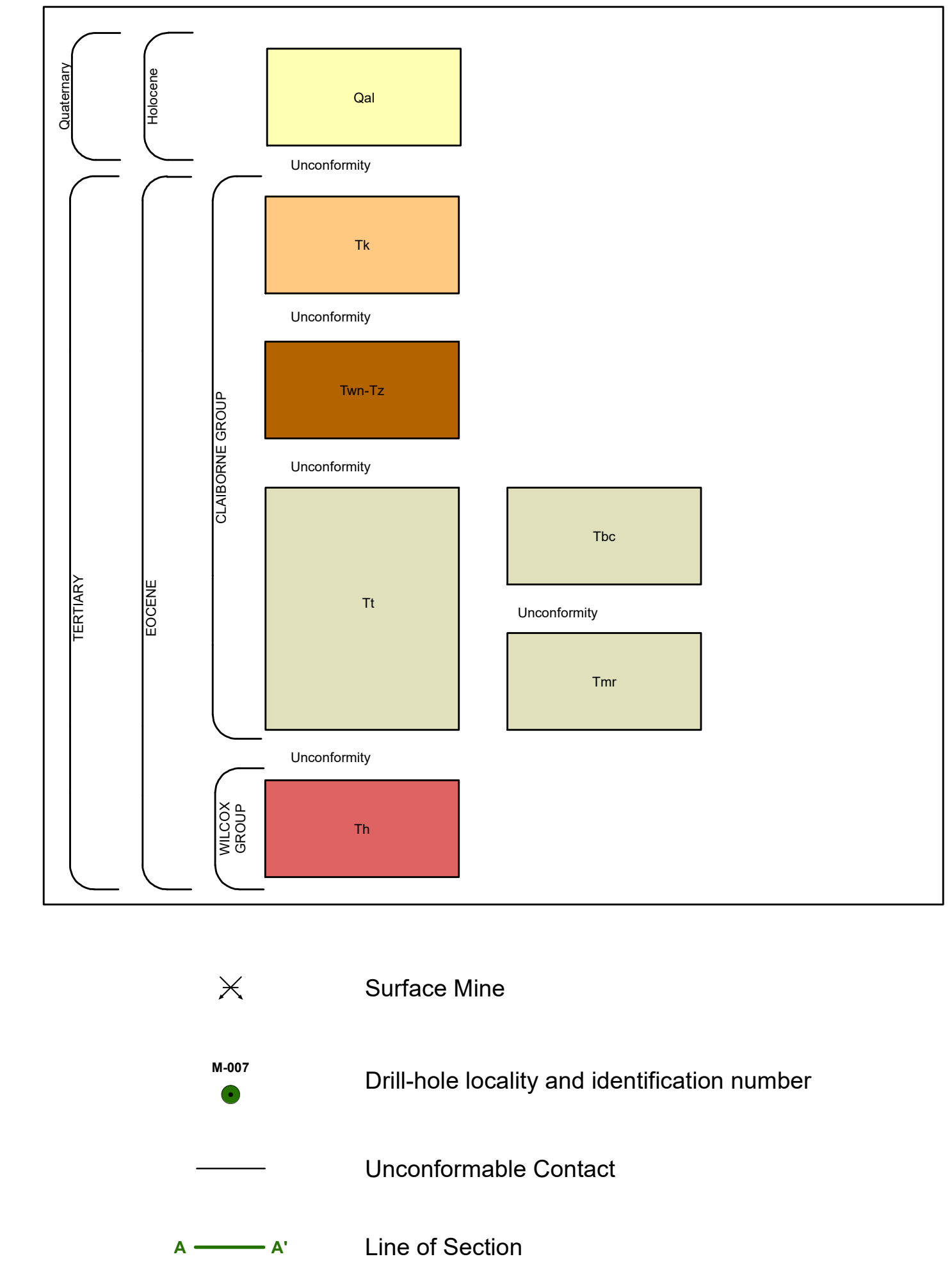


Correlation of Map Units



Descriptions of Map Units

ALLUVIUM
Sand, flood plain sands and silts.

KOSCIUSKO FORMATION
Sand, gray to light olive gray, weathers reddish orange to pale yellowish brown, massive to crossbedded, very fine- to very coarse-grained, quartzose, micaceous, locally exhibits scattered weak ledges of limonitic sandstone; interbedded to interlaminated with silt and clay, light olive gray to brownish gray, locally carbonaceous. Locally unconformable at base. The thickness is estimated to be 300 feet; however, only the lower 60 feet or so are exposed in the southern portion of the quadrangle. Constitutes the Sparta Aquifer.

ZILPHA AND WINONA FORMATIONS
Zilpha - Clay, gray to brownish black, carbonaceous to lignitic, weathers light gray to reddish pink to white, massive and homogeneous or interbedded to interlaminated with silt and sand, gray to light olive gray, quartzose, micaceous, carbonaceous, locally glauconitic; concretionary siderite and limonite; near surface exposures may exhibit jointing with selenite or limonite infilling. The thickness is variable from a few feet to 60 feet.

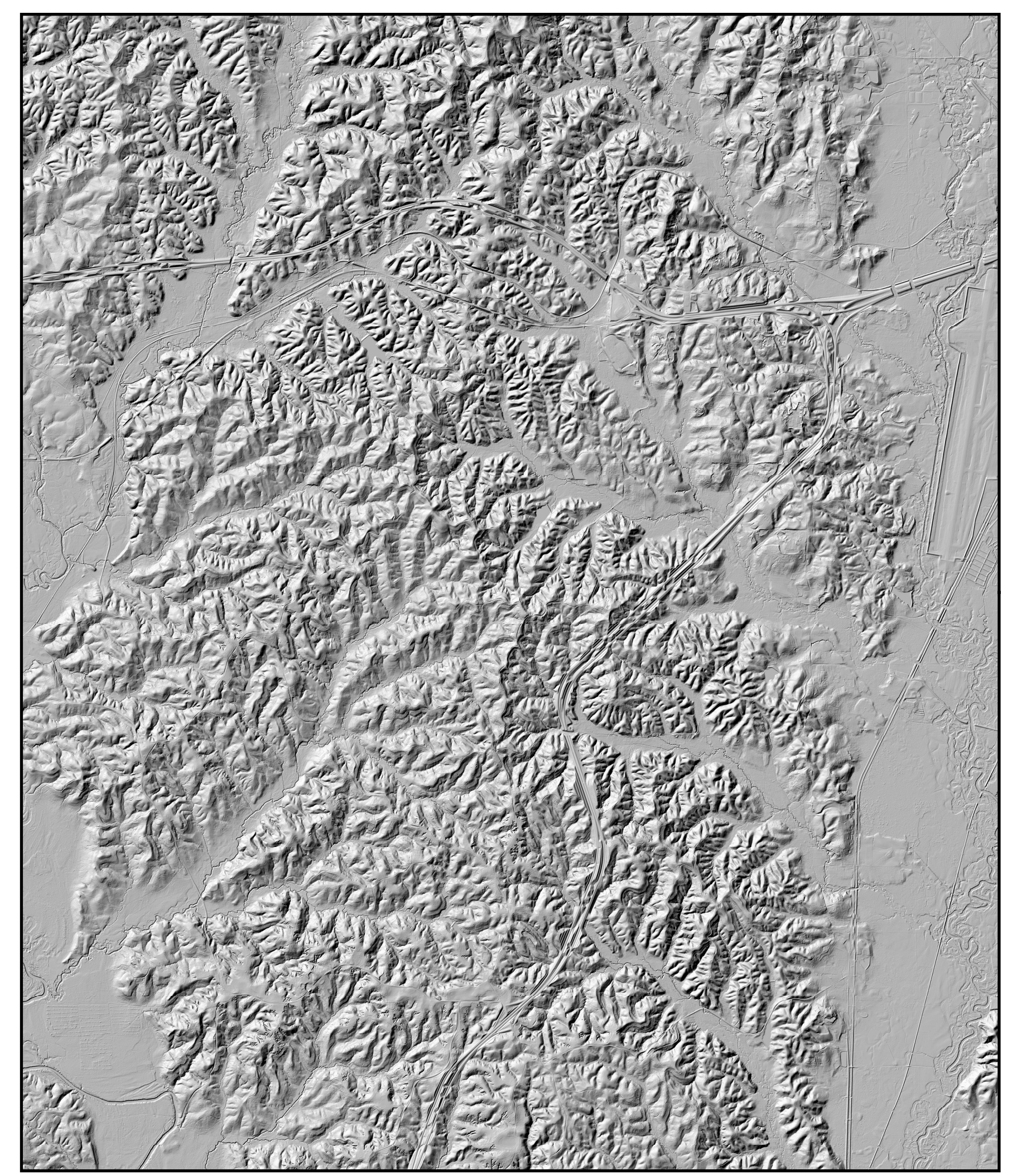
Winona - Sand, gray to green, weathers very light gray to reddish orange or dark red, fine- to coarse-grained, quartzose, micaceous, typically glauconitic to very glauconitic, carbonaceous, silty, locally fossiliferous with thin marine shell beds and prints. Surface exposures commonly weather to distinctive contorted, concretionary, limonitic sandstone and sandy ironstone; concretionary siderite, especially near top. Approximately 60 feet thick.

The maximum thickness of the Zilpha/Winona interval is approximately 120 feet, but thins to as little as 50 feet due to overlap or incision by the overlying Kosciusko Formation.

TALLAHATTA FORMATION
Basic City Member
Clay, silt, claystone, and quartzitic siltstone and sandstone, olive gray to brownish gray, weathers yellowish gray to very light gray or white, carbonaceous with leaf and plant impressions, fucoidal structures are common, locally exhibits marine fossil prints, near surface exposures may exhibit jointing with limonite infilling; claystones typically weather to lightweight and brittle rock with a subconchoidal fracture; interbedded to interlaminated with sand, gray to very light gray, weathers pale yellowish orange to reddish orange, very fine- to medium-grained, unconsolidated, massive to cross-bedded, quartzose, micaceous, carbonaceous, pyritic; also greenish yellow to buff, fine-grained, semi-consolidated, siliceous, glauconitic, and silty. The base is marked by a sandy interval, approximately 20 feet thick, which in outcrop exposures may exhibit quartzitic sandstone characteristics. The total thickness is approximately 120 to 200 feet. Additionally, the unit thins to as little as 120 feet in areas of the quadrangle due to apparent overlap of marine Winona lithologies.

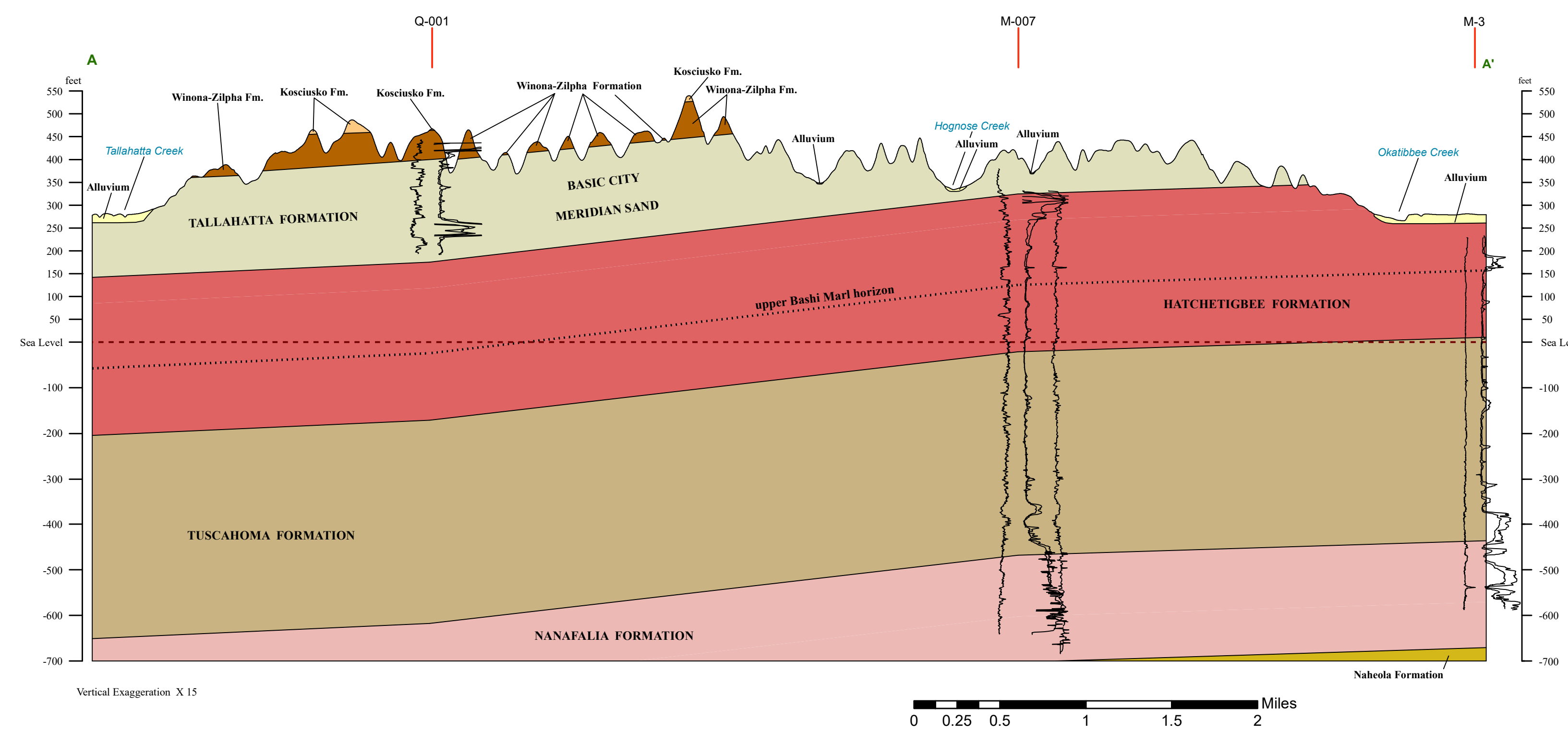
Meridian Sand
Basal portion of the Tallahatta Formation, not differentiated. Sand, gray to very light gray, weathers yellowish gray to reddish orange, very fine- to very coarse-grained, quartzose, micaceous, locally carbonaceous and/or glauconitic, pyritic. The thickness of the Meridian Sand is variable, from 20 to 100 feet. The Meridian Sand constitutes the upper portion of the Meridian/Upper Wilcox Aquifer.

HATCHETIGBEE FORMATION
Sand, gray to light gray, weathers reddish orange to pale yellowish orange, very fine- to very coarse-grained, quartzose, micaceous, pyritic, clay clast conglomerate; interbedded to interlaminated with clay, gray to brownish gray, weathers very light gray to white, silty, carbonaceous to lignitic, especially argillaceous in the upper beds of the formation; lignite. The basal 150 feet or are equivalent to the Bashi Formation of east-central Mississippi. The Bashi interval contains at least three distinct greensand marl intervals, with the most notable being the uppermost; a fossiliferous, boulder-bearing horizon at Meridian. Sand, gray to light gray, weathers reddish orange to pale yellowish orange, very fine- to very coarse-grained, quartzose, glauconitic, micaceous, carbonaceous, slightly pyritic, locally exhibits fossil prints and/or calcareous fossil remains, commonly weathers to large, limonitic, concretionary masses. The uppermost, fossiliferous, boulder-bearing interval is thought to mark the Paleocene/Eocene unconformity. The greensand marls are typically bounded by silt, clay, or lignite lithologies. The thickness of the Hatchetigbee Formation is approximately 260 feet, however only the upper 70 feet or so are exposed in the northeastern portion of the quadrangle. The Hatchetigbee Formation constitutes the basal portion of the Meridian/Upper Wilcox Aquifer.

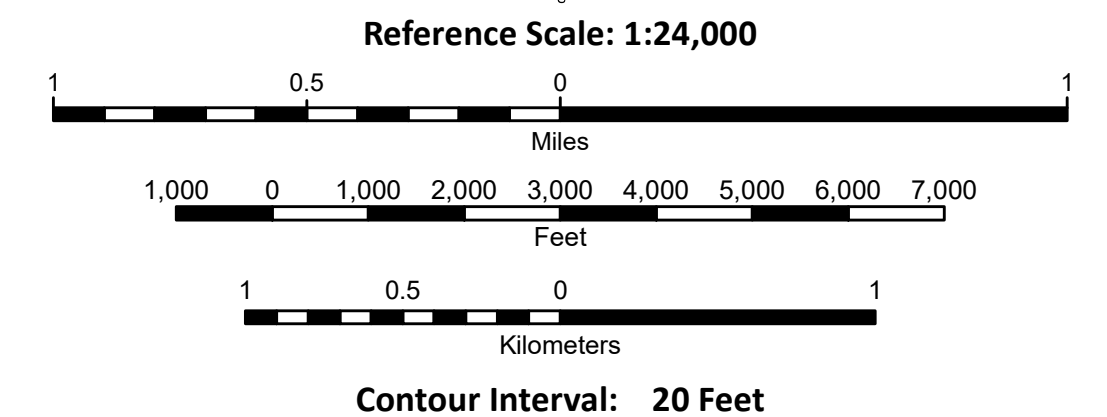


Meehan Bare Earth Hillshade
1:60,000
1 inch = 5,000 feet

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



Base Map produced by the Mississippi Geological Survey
Coordinate System: NAD 83 North American Datum 1983
Projection: Mercator
Datum: NAD 83
Units: Meter
Declination: World Magnetic Model December 31, 2021 estimated Magnetic North declination in quadrangle center is 2°11' west of True North
Annual rate of declination change is approximately 0°15' west per year
User: 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 began 2005-2013
Hydrography: LIDAR derived, National Hydrography Dataset (NHD) 2020
Contours: Contours derived from (USGS) 7.5 minute topographic quadrangle mylar separate, Provisional Edition 1982 by (MARS)
Roads: Mississippi Department of Transportation (MDOT) 2018
PLUS Boundaries: Mississippi Automated Resource Information System (MARIS) 2020
Building Footprints: Microsoft 2019
Surface Mine: MDEQ Office of Geology - Mining and Reclamation Division



Geology field check in 2012, 2013, and 2016 using the Provisional Edition 1982 U.S. Geological Survey 7.5-minute topographic quadrangle, contour interval 20 feet and supplemental contour interval 10 feet.
MDEQ-GEOLOGY Geographic Information Systems: Daniel W. Morse
MDEQ-GEOLOGY Drillers: Archer McKenzie and Terry 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.
This geologic map was produced by the Mississippi Office of Geology.

GEOLOGIC MAP OF THE MEEHAN QUADRANGLE

Lauderdale County, Mississippi

2013 REVISED 2021

Geology by
David E. Thompson, RPG

