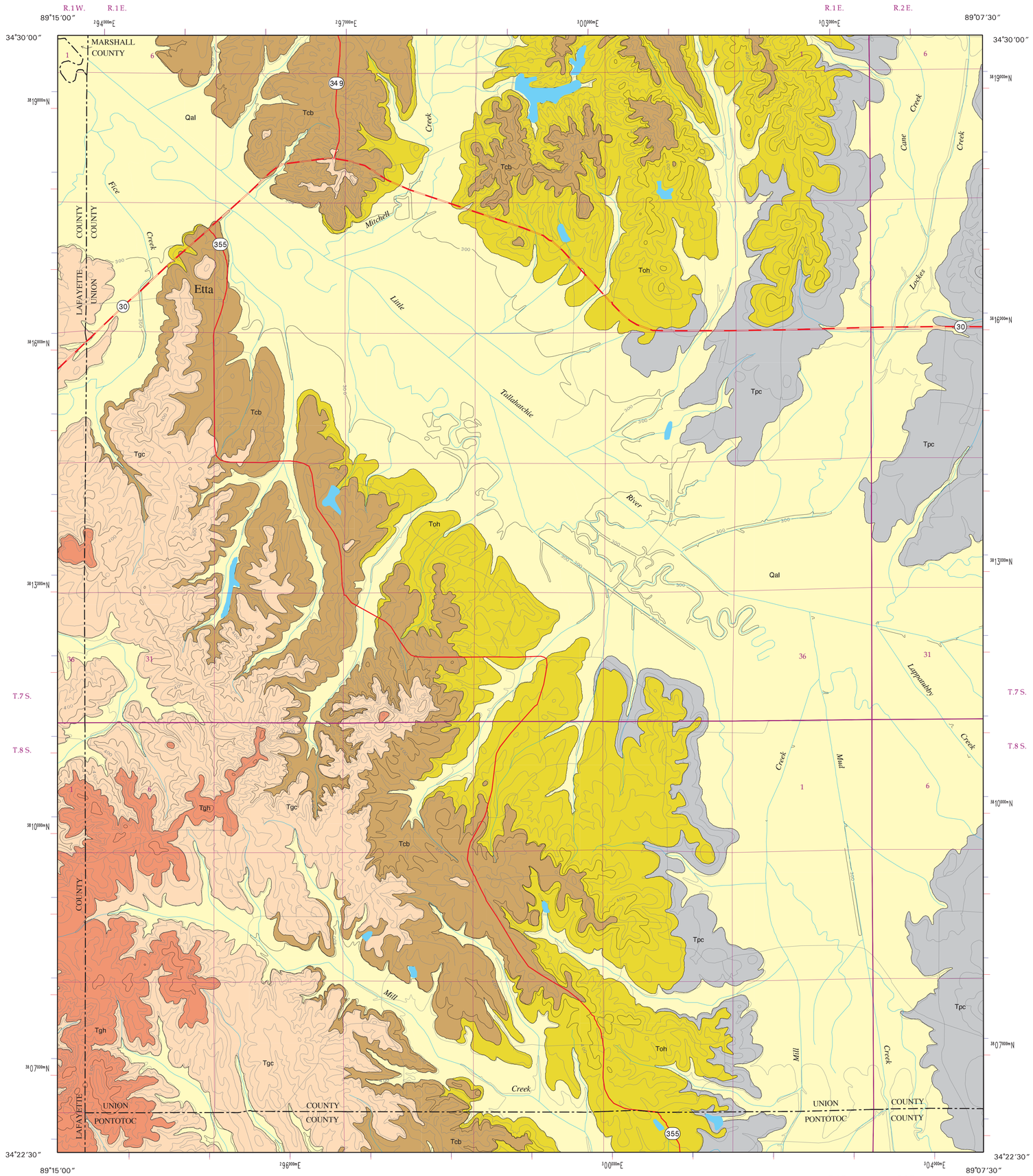

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF GEOLOGY
OPEN–FILE REPORT 124

GEOLOGIC MAP
of the
ETTA QUADRANGLE
Union, Pontotoc, Lafayette, and Marshall Counties, Mississippi

Geology by David E. Thompson

2002

DESCRIPTION OF MAP UNITS

QUATERNARY — HOLOCENE

ALLUVIUM

Qal — Sand, flood plain sands and silts.

TERTIARY — PALEOCENE

WILCOX GROUP

NANAFALIA FORMATION

Grampian Hills Member

Tgh — Clay and silt, medium gray to pale green, weathers to various shades of red, brown, and gray, carbonaceous; lignitic, contains correlative Red Hills Mine lignite seams C through G; interbedded to interlaminated with sand, dark greenish gray to medium gray, weathers reddish orange to pale yellowish orange, very fine- to medium-grained, quartzose, micaceous, carbonaceous, and slightly glauconitic. Basal portion is typically sandy. Total thickness is 130 feet; however, only the lower 90 feet or so are exposed in the southwestern portion of the quadrangle.

Gravel Creek Sand Member

Tgc — Sand, medium gray to very light gray, weathers reddish orange to pale yellowish orange, very coarse- to fine-grained, typically fining upward, quartzose, micaceous, with clay clast conglomerate; upper portion consists of clay, dark gray to light gray, typically dense, occasionally silty, carbonaceous to lignitic. Contains correlative Red Hills Mine lignite seams A and B. Thickness is 80 to 110 feet. Unconformity at base. Basal sandy interval (along with the underlying Coal Bluff sand) constitutes the Lower Wilcox Aquifer.

MIDWAY GROUP

NAHEOLA FORMATION

Coal Bluff Member

Tcb — Sand, dark gray to light gray, weathers pale yellowish orange to reddish orange, very fine- to very coarse-grained, sometimes pebbly, typically fining upward, quartzose, very micaceous, carbonaceous, with clay clast conglomerate and occasional quartzitic concretionary boulders; interbedded to interlaminated with clay and silt, dark gray to light gray, carbonaceous, lignitic, especially argillaceous near top. Contains characteristic kaolinitic to bauxitic clay clasts and beds. The thickness is 70 to 80 feet. Unconformity at base. Along with the overlying Gravel Creek sand, constitutes the Lower Wilcox Aquifer.

Oak Hill Member

Toh — Clay, brownish black to medium gray, weathers grayish brown to white, silty, carbonaceous, lignitic, kaolinitic to bauxitic; interbedded to interlaminated with sand, dark gray to greenish gray, weathers reddish orange to light yellowish orange, fine- to coarse-grained, quartzose, very micaceous, occasionally glauconitic. Locally, may be predominantly sandy where the typical clay facies changes laterally and abruptly into apparent fluvial channels. The thickness is approximately 100 feet.

PORTERS CREEK FORMATION

Tpc — Clay, grayish black, weathers dusky yellow brown to brownish gray, blocky, typically exhibits conchoidal fracture; upper beds, correlative with the Matthews Landing Member, are interlaminated to thinly interbedded with sand, pale yellow to greenish gray, fine- to very fine-grained, highly micaceous, glauconitic, and often containing sideritic concretions and nodules. The total thickness is approximately 230 feet; however, only the upper 100 feet or so are exposed along the eastern portion of the quadrangle.

GEOLOGIC MAP

ETTA QUADRANGLE

Union, Pontotoc, Lafayette, and Marshall Counties, Mississippi

N W E S

SCALE 1:24 000

1 .5 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER

Geology field checked in 2002 using the 1980 U.S. Geological Survey 7.5-minute topographic quadrangle, 1927 North American datum, contour interval 20 feet.

Mississippi Transverse Mercator projection. 1983 North American datum. GRS80 spheroid. 1000-meter Universal Transverse Mercator grid ticks, zone 16; 1983 datum shown in red, 1927 datum shown in blue.

Sources: Road and water features, USGS Digital Line Graph data, 1:100,000 scale. Public Land Survey System and contours, Mississippi Automated Resource Information System (MARIS), 1:24,000 scale.

Geographic Information System by Daniel W. Morse. This map was produced by the Mississippi Office of Geology in cooperation with the U.S. Geological Survey, National Geologic Mapping Program, under STATEMAP grant #01HQAG0043.